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**The London Transport Pool** Mr. Frank Pick had some interesting observations to make on the question of the pooling arrangements between the main-line railway companies and the London Passenger Transport Board in the course of a lecture delivered at the London School of Economics on Monday last, of which we give a summary on page 380. Mr. Pick revealed that 1932 had been selected as a basic year for calculations, which, of course, were subject to adjustments equitable to meet changes since that year. Although no conclusive agreement had yet been arrived at, he suggested that it was probable that the ultimate interests in the pool would be about two-thirds to the board and one-third to the main-line railways. Of the gross traffic brought into the pool the board would, it was at present estimated, contribute 72 per cent. and the main-line companies 28 per cent. Before the pool is divided, however, certain operating allowances are to be made to cover the variable costs of providing the services required for the carriage of traffic, and it was after making approximate provision for these operating allowances that the estimated proportions already mentioned were obtained. Mr. Pick also made it clear that these same variable costs for the different forms of transport under the administration of the board would make it impossible to avoid what might

appear to some an anomaly in fare rates. As an example, he cited the greater seating capacity of trams, which permitted cheap fare facilities that could not be offered similarly on the board's omnibuses.

## The British Industries Fair

This year's Fair, which was opened on February 9 and closes to-night, is bigger than ever before. The floor area of the exhibition buildings in London and Birmingham exceeds 30 acres, the frontage of the indoor stands measures about 32 miles, and there are some 2,500 exhibitors representing almost the entire range of British manufactures. Visitors from far and wide have flocked to the Fair, their way made easy by special railway facilities. Although large orders have been booked they will unfortunately by no means absorb the whole capacity of British industry which, in common with that of most other countries, is far in excess of effective demand. It is, of course, not in excess of the wants of potential customers, who are prevented from buying merely by lack of purchasing power. It is a ridiculous situation well illustrated by the motto, quoted the other day in the press, of one of the now numerous groups of persons who affect shirts of particular and uniform hue, in this case appropriately green: "Would a maggot starve because the apple was too big?"

## The Week's Traffics

The traffic returns of the four group railways for the past week are notable for an increase of £44,000 in Great Western receipts, which exceeds all weekly increases shown by this company since the beginning of the year. This is explained for the most part by the fact that it was during the corresponding week last year that the country, especially South Wales, experienced one of the worst snow blizzards of recent years, and traffic in many districts was consequently brought to a standstill. In spite of this, however, the Great Western suffered a falling off in passenger receipts of £2,000. The other three groups, which were not affected by the snow until later in the week in 1933, maintained the consistent improvements of recent weeks without showing any exceptional increases. In every case the percentage increases of the year's totals have risen.

8th Week						
	Pass, &c.	Goods, &c.	Coal, &c.	Total	Year to date	Inc. or dec. %
G.W.R.	— 2,000	+ 24,000	+ 22,000	+ 44,000	+ 3,485,000	+ 6.15
L.M.S.R.	+ 11,000	+ 65,000	+ 6,000	+ 82,000	+ 8,542,000	+ 7.07
L.N.E.R.	+ 2,000	+ 53,000	+ 26,000	+ 81,000	+ 6,425,000	+ 9.73
S.R.	+ 9,000	+ 7,500	+ 3,500	+ 20,000	+ 2,597,000	+ 3.63

## Manchester Inter-terminal Facilities

In the city of Manchester there is at all times a considerable transfer of passengers between the various terminals. Victoria and Exchange stations of the L.M.S.R. have always been linked together by a footway, but apart from this connection, or taxi hire, practically the only direct communication between any two terminal stations in Manchester has been by tramcars between Central and Victoria stations, and between London Road and Exchange stations, and in three cases walking up lengthy station approaches is involved. It was to meet this need, as well as to relieve the tramcar congestion in such important streets as Market Street and Deansgate, that plans were prepared several years ago for a tube railway linking up the principal terminals in Manchester, but the scheme fell through on account of the heavy cost involved. A useful alternative, however, is now provided by the Manchester Corporation. As briefly recorded in our issue of

February 16, special motorbus services are run at frequent intervals from London Road station, starting at the top of the station approach, to Victoria, Exchange, Central, and Oxford Road stations, and thence back to London Road again, as well as in the reverse direction. Direct communication is also provided in this way between the stations and many of the principal hotels in the city. A fare of fourpence is charged, irrespective of distance.

#### Overseas Railway Traffics

Traffics of the four principal Argentine railways during the past fortnight have been disappointing. The decreases recorded in the 33rd week of the year to date were due generally to traffic being weakened by Carnival holidays and in the case of the Central Argentine to rain also, but no such reason appears to be assigned for the fall in receipts for the past week on three of the railways, the Pacific being the exception with a small increase. On the Great Southern the increase to date is now brought down to £9,000, and the Central Argentine aggregate decrease of £674,000 a fortnight ago is now increased to £713,000. With its 32nd week the Entre Rios had a traffic increase which brought its aggregate receipts £3,100 above those for the previous year. Substantial increases in gross receipts continue to be recorded by the Canadian Pacific, which in the past fortnight have improved to the extent of £151,200.

Railway.	No. of Week.	Increase or Decrease.	Increase or Decrease.
		£	£
Buenos Ayres & Pacific ..	34th	131,000	+ 1,000
Buenos Ayres Great Southern ..	34th	255,000	- 23,000
Buenos Ayres Western ..	34th	70,000	- 5,000
Central Argentine ..	34th	156,000	- 20,000
Canadian Pacific ..	7th	428,800	+ 74,400
Bombay, Baroda & Central India	46th	198,000	+ 23,625
		6,888,600	+ 214,800

#### L.M.S. Meeting

The atmosphere of the L.M.S. meeting last Friday was very different from that prevailing a year ago. Last year, it is true, the stockholders had for the first time the benefit of ample space in which to meet, but they were in a depressed and critical mood, and were for the most part incapable of appreciating the magnificent achievements of the management in effecting permanent economies. This time they were in a hopeful mood and unanimously passed all the resolutions put to them. Sir Josiah Stamp pointed out that while in the first six months of the year there was a reduction in receipts of £1,700,000, the second six months showed an actual improvement of £1,375,000. Against the loss in earnings of £325,000 for the whole year there was a saving in working expenses of £1,133,000, so that there was an increase in net revenue of £808,000. He was able to assure the meeting that the large economies arising out of reorganisation and re-equipment during the last few years would be of a permanent nature, though making it clear that there must be some limits to further savings in this direction. The Chairman also showed that as an outcome of the commercial reorganisation the company's personal contact with the public had been widened and strengthened. He also referred to the speedier delivery of goods, the increased efficiency of locomotives, and the employment of light rail units, and the large savings likely to result from the extensive improvements in signalling equipment. His allusions to the success of the Royal Scot tour and the generous assistance afforded by railway officers in America were received with much satisfaction.

#### G.W.R. Meeting

Shareholders at the Great Western Railway meeting on Wednesday were deeply impressed by Sir Robert Horne's references to the late Viscount Churchill, and felt that no finer tribute could have been paid to the memory of a

great chairman. They were also well satisfied with the manner in which their new Chairman conducted the proceedings and with the courtesy and humour which he showed in dealing with questions. On account of the summary issued with the report the figures of the results for the past year were not analysed in great detail, but the salient features were brought out. Referring to the new item of Air Transport in the accounts, the Chairman said that although this particular activity had resulted in a loss of about £6,000, it had given the company a cheaply purchased experience and would be of great use in the future. Explaining the reasons for maintaining the 3 per cent. dividend, he endorsed the opinion of his predecessor that the ordinary shareholder was entitled in bad times to benefit from the free reserves which had been built up in more normal times to meet just such a set of circumstances as the present. The balance sheet showed that cash and investments in Government securities were some £1,000,000 higher than a year ago, and that the reserves, which amounted to £23,500,000, bore a satisfactory relation to the total capital. Next year, he reminded the shareholders, the Great Western would have a special inspiration for enthusiasm, as it would then be 100 years old.

#### The Southern Railway Meeting

Mr. Gerald Loder's lucid and satisfactory account yesterday of the Southern Railway Company's activities during 1933 effectively anticipated and stilled the hitherto familiar voice of the carping critic, and no one even suggested that the Board of Directors should be scrapped. Mr. Loder was able to indicate how well justified such ambitious works as the electrification extensions and the enlargement of Southampton Docks were proving. With expenditure reduced by 17½ per cent. compared with 1927, 26,000,000 more passengers had been carried. Of the increase in 1933 of £321,000 in passenger train traffic, compared with 1932, £150,000 was earned by the new Brighton electric services, and during the year the number of passengers between London and Brighton alone increased by 520,000. This traffic is still improving, for in January last 110,000 more passengers were carried in this area than in January, 1933. As an indication of the success of the docks extensions at Southampton Mr. Loder mentioned that, but for the additional quay space brought into use last May the company would have been unable to accommodate certain vessels which were offered during the summer. The reclaimed land was being let to advantage, and altogether the new works were likely to prove profitable not only in themselves, but for the traffic they would bring to the railway. Mr. Loder referred to the improving cross-Channel traffics and announced that the new train ferry services would be ready by the summer of 1935. Negotiations were in progress with the International Sleeping Car Company for the running of through sleeping car services between London and Paris. A report of the meeting will appear in these pages next week.

#### Sixpence a Mile

The mere mention of sixpence a mile for third class travel on any of the railways of this country would be sufficient to arouse a storm of protest and be regarded as something entirely outside the region of what was reasonable and fair; yet there are circumstances in which such a charge can only be described as moderate to a fault. This sum in the aggregate is, of course, being paid by the delighted travellers who share the new three-aside corridor coach compartments, the amenities of which are of a first class description in practically everything else but name. The

wide and luxuriously sprung seats provided with arm rests, shaded lights over the shoulder, no-draught ventilation, uniform warming effects, amplitude of window spacing on both sides, affording a clear and virtually uninterrupted view of the country through which the train is passing, liberal knee room and other advantages all combine to provide luxury travel for six occupants for an equivalent number of pence per mile. By restricting the number of seats to six and fitting up the compartments in this lavish fashion the railway company might be thought to be sacrificing its own interests too much for the benefit of its patrons, and unless such carriages can be well filled some such doubt may reasonably arise. Railway travellers in this country are credited with a strong desire for seclusion on their journeys, nothing delighting them more, as individuals, than to find themselves in sole occupation of a compartment. But if they were called upon in such circumstances to pay sixpence a mile for the privilege, they would regard it as monstrous; yet from the company's point of view, some such minimum revenue from the compartment would be but a reasonable charge for the luxuries provided.

**Greater Shanghai Development** Shanghai, a city with a population exceeding 3,000,000, is at present a jumble of structures, the result of its inordinate growth during the ten years, 1920-30, when it expanded by 86 per cent. Its reasonable development is impeded by the existence of three separate municipalities with no unification of policy, by lack of direct connection between the harbour and the railways, and by the inadequacy of shipping facilities. However, a City Planning Commission was formed in 1929 and as a result of open competition designs have now been formulated for a new city between Woosung and the International Settlement. In the new lay-out, the city is built round a civic centre, with main axial boulevards from north to south and east to west. A grand railway terminal is located at the west end of the east and west axis and is connected with a new railway nerve-centre, Chen-Ju junction, by one of the four lines radiating from it. The other three are the Nanking, Woosung, and Hangchow main lines and Chen-Ju is situated to the north-east of the International Settlement. A belt railway will also connect the new harbour site with the southern and western parts of the city and thence will cross the river, follow the bank of the Whangpoo and travel the whole length of Pootung to the mouth of the river. Meanwhile a branch line has been sanctioned from the Woosung section of the N.S. Railway to the new Civic Centre. It will be single track and of standard gauge and will be worked by the N.S. Administration. These ambitious plans include great harbour works, and park-like surroundings to the grand terminal station.

**Bridge Failures in America** Two serious accidents occurred last year to passenger trains in the United States as a result of the failure of bridges over rivers. The Bureau of the Interstate Commerce Commission duly enquired into the circumstances and recently issued reports. In one case, where the Pennsylvania Railroad is carried over the River Anacostia, about four miles north of Washington, and which involved the death of the driver and fireman and injuries to 20 passengers, a pier, founded on gravel, was undermined by an unprecedented flood. In the other, at Harjis, N.M., in which a Southern Pacific train was derailed and eight passengers and three employees killed, as well as 46 persons injured, an abutment collapsed due to undermining from a similar cause. The Bureau of

Safety report attributes both failures to faulty inspection. These two accidents draw attention to the vital importance of consistent vigilance by the staff of the permanent way and works department. It is usual in this country for all bridges to be inspected periodically; the permanent way ganger includes in his track inspections a general supervision of all structures upon which the safety of traffic depends, but in addition, of course, there are special inspectors to conduct minute examinations of all structures at fixed intervals.

**New Rolling Stock in South Africa** As our Overseas Correspondent records this week (see page 343), a big programme of rolling stock construction is in hand for the South African Railways. Besides 941 freight vehicles now being built in the S.A.R. workshops, a further 2,000 four-wheeled steel drop-sided wagons, estimated to cost £600,000, have been sanctioned. The construction of 500 of these wagons will be undertaken immediately in the administration's workshops, using imported steelwork, but before construction of the remaining 1,500 vehicles is started inquiries are to be made as to whether the steel required for them can be obtained in South Africa or not. On the locomotive side, in addition to the 50 class 19 C engines which, as already reported in THE RAILWAY GAZETTE, are being ordered abroad, an experimental 2-10-2 locomotive is to be built in South Africa at an estimated cost of £7,500, exclusive of the tender. This locomotive, which is to have a tractive force of 33,000 lb., will be made up principally from standard parts of existing engines, so that the spares required for the new type will be exactly similar to those of others. Provided that the building up of this engine from parts belonging to older ones is merely for the purpose of experimenting with a specified wheel arrangement and other features to determine whether new locomotives having the same characteristics should be ordered, well and good, otherwise it is difficult to appreciate the value of a policy based on the use of reclaimed material in what to all intents and purposes is a new type of engine.

**The Locomotive Trade in America** The annual statistical number recently published by our American contemporary, the *Railway Age*, contains an article written by Mr. Walter J. Taft, Associate Editor, and entitled "Locomotives Ordered in 1933." The author states that in all some 49 locomotives were ordered in the United States during last year, 42 of them being for service at home and seven for export to other countries. Of the 42 built for use in America only 17 were steam propelled, the largest steam locomotive order of the year being that placed by the Northern Pacific for ten 4-8-4 type passenger engines. Steam locomotive builders fared somewhat better than in 1932, since all the 1933 orders were placed with outside builders, whereas in 1932 the only American railway that acquired new steam locomotives placed the order with its own shops. The total business of the past two years, as measured by units ordered, was less than 25 per cent. of the 1931 business, which, in turn, was only about 20 per cent. of the average annual output for the 1922-1931 decade. The balance of the 42 locomotives ordered for service in the United States was made up of 20 oil-electric and five petrol locomotives, the Delaware, Lackawanna & Western being the largest buyer of other than steam locomotives with their purchase of 12 oil-electric units. Locomotives ordered in 1932 but built in 1933 for service in the United States, as distinguished from those ordered last year, totalled 57, of which six were steam propelled, 36 electric and 15 of other types.

## Railways and Politics in South Africa

**R**AILWAY building in South Africa began with construction by private enterprise on a small scale in Cape Colony in 1863 and in Natal in 1868. The Cape lines were, however, acquired by the Cape Government in 1872 and the Natal lines by the Natal Government in 1877, and from thenceforward these two colonies became railway builders on their own account, and their railway policy, so long as they remained separate States, was mainly based on their individual political necessities. In the 'seventies there were no railways either in the Orange Free State or in the Transvaal. At that time the immediate railway goal both for Cape Colony and Natal was Kimberley, where a large population had been gathering since the discovery of the "dry diggings" in 1870. From 1885, when the Witwatersrand gold reef in the Transvaal was discovered, the chief railway objective both of the Cape and Natal was the Rand. The railway rivalry between these two colonies then became more intense and their difficulties were increased by the obstructive attitude of the Transvaal Government, whose interest it was to obtain as much traffic as possible through the Portuguese port of Delagoa Bay, though it was not itself a railway builder.

President Brand, of the Orange Free State, was eager to see the extension into his territory of railways from the Cape and Natal which would give it access to the new markets on the western border at Kimberley and in the Transvaal on the north, and he undertook to build them if the Cape and Natal would give the Free State a share of the Customs duties collected at their ports upon goods destined for Free State consumption. But the Cape and Natal were so bent upon obtaining all the revenue they could from their railways and Customs and upon taking traffic from each other that nothing could be arranged until 1889, when the scramble for railway access to the Rand began in earnest. The story of the conflicting railway and Customs policies of the four separate territories which are now provinces of the Union of South Africa is well told in a recent publication by the Royal Empire Society.\* Though racially akin to the Transvaal, the Free State leaned commercially towards the Cape, while Natal's railway interests lay in direct access to the Transvaal, and President Kruger obstructed everything but the Portuguese Railway from Delagoa Bay to his frontier and the railways of the Netherlands South Africa Company which continued that line into the Transvaal, and had the entire control of the rates policy for traffic to the Rand. No unified power existed to control the riotous expansion of the transport system of South Africa, and no political machinery had been devised to see the railways of four different governments safely over their several boundaries and to bring the unequally distributed ports into a proper relation with the unequally concentrated markets.

After the Boer War the railway systems of the Transvaal and the Orange River Colony, as it was then called, were united under the name of the Central African Railways. The effect of this union was to draw together the railway interests of north and south and to loosen, in some degree, the exclusive linkage of Transvaal railway interests with Delagoa Bay. But the budgets of the four African colonies were still matters of individual concern, the revenue from railways and customs had not ceased to be their chief financial support, nor the Rand the most desirable market in the country. Moreover, the position was further complicated by an agreement with the Por-

gueze Government, which gave special treatment to Delagoa Bay in return for the right to bring in the labour of Portuguese subjects which was needed for working the mines. A step forward in the direction of a union of railway interests was taken at the Bloemfontein Conference in 1903, but the war of rates still continued. It was not fully recognised until 1907 that mere amalgamation of the railway systems would leave unsolved the questions of the division of profits, the priority of ports, the customs tariff, and the protection of colonial products. These were not solved until the passing of the Union of South Africa Act, which placed all the railways in South Africa, except one or two private lines at the Cape, and all the harbours under one administration. Even then the Portuguese agreement relative to Delagoa Bay still remained, but it was due to disappear in another ten years.

## Great Southern Railways

**A**MONG the matters chiefly noticeable in the report and accounts for the past year are the sweeping reductions in share and loan capital enforced by the Free State Government under the Railways Act, 1933, these reductions taking effect as from July 1 last. A new account, No. 2 (a), is inserted showing how the change in the share capital has been effected. The stock cancellations are £1,942,207 in the case of the 4 per cent. guaranteed preference stock, thus reducing it from £3,885,374 to £1,943,167; £3,292,240 in the case of the 4 per cent. preference stock, thus reducing it from £5,068,464 to £1,776,224; and of the ordinary stock no less than £6,989,196 has been cancelled, bringing it down from £7,767,123 to £777,927. Debenture stocks have been written down from £8,454,027 to £7,207,202, a reduction of £1,246,825, and the total amount raised by loans and debenture stocks has been reduced from £8,675,727 to £7,322,402. Other features of the Act of 1933 are that it reduces the number of directors from twelve to seven and abolishes the representation of the London Midland & Scottish Railway Company on the Board. The L.M.S.R. representative has already retired, and the present term of office of the eleven remaining directors will expire on March 1. Two of the present directors, Messrs. Arthur Jackson and A. R. MacMullen, do not seek election to the new Board. The Act of 1933 prescribes the method of election of directors by a scheme of postal voting, which has been issued under the authority of the Minister for Industry and Commerce.

Railway gross receipts amounted in 1933 to £2,871,912, a decrease of £168,626 in comparison with 1932. Railway working expenditure was reduced by £69,100 to £2,566,596, the traffic operating ratio being raised, however, from 86.92 per cent. to 90.65 per cent. Net railway receipts were accordingly £305,317, a decrease of £99,526. Profits from ancillary businesses showed a distinct improvement, being £16,556 in 1933 against £270 in 1932. This was due mainly to road transport, which gave net receipts of £15,003, against £2,799 in the previous year. Satisfactory increases in gross receipts and savings in expenses in this business were secured. In addition, the losses on canals and docks were considerably reduced. The balance sheet shows a payment of £30,562, less amount amortised, in respect of the road transport services of the United Irish Investment Co. Ltd., and payments of £317,500 in connection with the acquisition of road transport undertakings (partly secured) and temporarily carried in suspense. From hotels, &c., the net receipts were £6,609, against £7,006 in 1932. Miscellaneous receipts were £2,104 lower and total net income £84,984 lower. A direct result of the reduction of the

\* "Railway and Custom Policies in South Africa 1885-1910." By Jean Van der Poel. London: Longmans Green & Co. Ltd., 39, Paternoster Row, E.C.4. Price 7s. 6d.

4 per cent. debenture stock from £8,323,797 to £7,076,972 has been that the interest on this stock for the second half of the year requires £24,937 less. Prior charges, as a whole, were £43,351 lower. As already announced, the directors have been compelled to defer payment of a dividend on the cumulative guaranteed stock and arrears due in respect thereof. Results for the past three years are compared in the accompanying table:—

	1933. £	1932. £	1931. £
Total expenditure on capital account ..	29,719,403	29,738,997	29,761,038
Gross receipts from businesses .. ..	3,000,217	3,172,461	3,617,148
Revenue expenditure on ditto .. ..	2,678,344	2,767,708	2,991,836
Net receipts of ditto .. ..	321,873	404,753	625,312
Miscellaneous receipts .. ..	113,848	115,952	109,603
Total net income .. ..	435,721	520,705	734,915
Interest, rentals and other fixed charges .. ..	434,508	477,859	429,291
Dividends on guaranteed preference and preference stocks .. ..	Nil	Nil	358,154
Balance after payment of preference dividends .. ..	—	— Dr.	52,530
Dividend on ordinary stock .. ..	Nil	Nil	38,836
Rate per cent. .. ..	—	—	½
Appropriation from Compensation Fund .. ..	—	—	50,000
Brought forward .. ..	44,995	2,149	43,515
Carried forward .. ..	46,208	44,995	2,149

Passenger train receipts amounted to £1,225,168, a decrease of £97,316, and represented 42·98 per cent. of total traffic receipts, compared with 43·79 per cent. in 1932. Goods train receipts were £1,625,422, a net fall of £71,982, receipts from "other minerals" having shown an increase of £9,506. Working expenses had the benefit of the Government contribution of £27,674 in respect of salaries and wages up to April 30, but apart from that there was a reduction of £80,104 in locomotive running and traffic expenses. Expenses of maintenance and renewal of permanent way increased from £437,764 to £464,645, and allocation to maintenance and renewal of rolling stock was £432,642 as against £424,618 in 1932.

### British and American Rolling Stock

FOLLOWING the short article published on page 63 of our issue of January 12, which included a comparative table of the weights of British and American rolling stock, we received a letter from Mr. C. J. Hanratty, Publicity Representative of the Canadian National Railways, and included this in THE RAILWAY GAZETTE of January 26. Further comment now comes from Mr. E. E. R. Tratman, and we have inserted this in our letters to the Editor column this week. In view of the misunderstanding which apparently exists, it may be pointed out that any comparison of the weights of British and American rolling stock cannot be regarded as statistically accurate, since exactly similar rolling stock does not exist on both sides of the Atlantic. Mr. Hanratty pointed out that sleeping compartments of the British type might be found on the Inter-City Limited of the Canadian National Railways, running from Montreal to Chicago, but the car having accommodation of this type runs only between Montreal and Toronto; in short, it does not penetrate into the United States at all. We believe that occasionally cars of this Canadian National type are actually in use on the Central Vermont Railway and run between Montreal and Washington, but Mr. Hanratty has made no mention of this service. We were careful to qualify our statement by saying that "compartments of the British type are rare in America,"

a point which is not controverted by Mr. Hanratty nor by Mr. Tratman, and even now no trace can be found of a car providing this accommodation only in America, a term which is regarded as referring to the United States exclusive of Canada. It would, however, appear from Mr. Hanratty's letter that, though they exist in Canada, they are available only on a few trains each day.

Mr. Tratman raises the question of the capacity of an American Pullman sleeping car, and points out that the capacity of uppers and lowers is 32, and not 16; that is most certainly the case, but, if the figure be taken as 32, then the accommodation and degree of comfort offered are reduced and are incomparable to the British private-room single berth. In short, if 32 is the figure to be used as a basis, then that figure must be regarded as third class accommodation, not first class. In the table in THE RAILWAY GAZETTE it is reckoned as first class. In his next paragraph Mr. Tratman refers to passenger seating in restaurant cars. A diner may not add to the accommodation of an American train, but it certainly does so on a British train. We recently travelled from Euston to Glasgow all the way in the diner because there were no other seats free. In practice there are many examples of American trains where passengers do get on, say, at Baltimore, sit down in the diner, have a meal and get off at Philadelphia or Washington without ever having a seat except in the dining car.

### The Effect of Hammer Blow on Track

THE serious increase which occurs in the live load stresses on bridges subjected to high-speed traffic hauled by locomotives whose revolving and reciprocating parts are insufficiently or improperly balanced has been fully investigated in this country by the Bridge Stress Committee, and the term "hammer blow" which is used to define the forces set up is now a commonplace in the vocabulary of British railway engineers. In America, where they usually call it "dynamic impact," the evils which arise from unscientific balancing appear to have shown themselves in the track. We learn from the *Erie Railroad Magazine* for last September that on certain sections of that company's track, rails became badly "kinked," necessitating their replacement before they were worn out. With the assistance of Prof. A. N. Talbot, of the University of Illinois, and Mr. L. E. Collins, of the Track Testing Department of the Santa Fé, an elaborate series of tests was made. The instruments used consisted of twelve stremmatographs for measuring the stresses in the rails, and a cinematographic apparatus was used for determining the position of the coupled wheels relative to the instruments. Nineteen locomotives drawn from twelve classes of engine were tested at speeds varying between 5 and 70 m.p.h., and 1,541 test runs were made. The results of these tests are of considerable interest. Prior to the rebalancing of the locomotives, maximum rail stresses exceeding 22 tons per sq. in. were recorded, but alteration to the counterweights reduced this maximum to about 16·75 tons per sq. in. A further improvement was then effected by the addition of "cross balance" weights, as a result of which the maximum stress dropped to 12·25 tons per sq. in., a reduction of 45 per cent. Apart from the consequent saving in track maintenance costs, substantial economies in locomotive maintenance also resulted; it was found that the tyres of certain fast freight locomotives which previously required turning after 20,000 miles owing to the wheels becoming "out of round" now last upwards of 30,000 miles without such attention. It is stated that the cost of fitting cross balance weights was about £10 a locomotive.

## LETTERS TO THE EDITOR

(*The Editor is not responsible for the opinions of Correspondents*)

### **British and American Rolling Stock**

217, Gary Ave.,  
Wheaton, Illinois.  
January 29

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—In your comparison of the Royal Scot train with American trains (in THE RAILWAY GAZETTE, January 12, page 63) the sleeping car is credited with 16 berths; but an ordinary sleeper would have 16 sections, each seating and sleeping two passengers, so that the number of seats or berths would be 32. This arrangement does not include sleepers of the comparatively few compartment type. A diner does not add to the seating capacity of an American train, as it is occupied only at meal times, by the passengers from other cars.

Yours very truly,  
E. E. R. TRATMAN

[We comment on this subject on page 339.—ED. R.G.]

### **The First Locomotive in Germany**

London, E.C.1.  
February 24

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—I was greatly interested in the editorial appearing on page 287 of your issue of February 23, in which it was stated that Robert Stephenson & Co. in 1835 supplied to Germany a 2-2-2 type locomotive weighing 6 tons 12 cwt. "at a price calculated at equal to £1,750 on the line." This works out roughly at £265 a ton, a figure which, even allowing for the fact that the order was for one engine only and delivery was to be on rail abroad, is enough to bring tears to the eyes of a locomotive contractor in 1934, nearly 100 years later.

If we take the case of a present day order for ten engines of, say, the 4-6-0 type with standard fittings—none of the more elaborate and consequently expensive items of equipment being included—then I think I am right in saying that any of the locomotive building firms would be glad to get the engines at £75 a ton, which would just about keep things straight for them, having regard to the cost of materials and fittings and calculating the weight on an "empty" basis and including the tenders.

Of course, the figure fluctuates more or less violently, according to the number, specification, and other circumstances, but I do not think I am far out at £75 a ton for what may be regarded as a normal type of locomotive built under normal conditions.

Yours faithfully,  
A READER

### **Automatic Train Control in Switzerland**

Manchester,  
February 26

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—It would appear from your description of the Signum train control system given in the February 16 issue that although attempts have been made to prevent the breakage of a wire causing the system not to function properly, the circuits as shown in your diagram are not beyond some criticism.

A broken lead between the battery and magnet 1, for example, would prevent energisation of relay 5, even though a distant signal was passed at danger. Furthermore, a broken wire between the track magnets 2 and 3 would

prevent proper functioning, and as the connection between these two magnets is on the track, such a fault might not be very remote from actual fact. Relay 5 will not be energised if any of the leads between magnet 4 and this relay become broken or detached from their connections, and similarly a faulty contact in the vigilance button or a fault causing an open circuit in the speed recorder would produce a similar effect.

With regard to the first point raised, it would appear that if the winding of magnet 1 were inserted in series with the dead-man circuit, one possible source of trouble would be eliminated. The other failure possibilities seem to be inherent in the system.

Incidentally, it appears that the diagram you publish is incorrect in so far as the contact in relay 5 should be shown normally closed in order to line up with the description of the functioning of the circuit as given by you.

AMATEUR

[The criticisms made by our correspondent are, we consider, well founded. In our editorial article on Automatic Train Control in our issue of February 16, in which the Signum system was described, we expressly pointed out that while approving the choice of the inductive principle, owing to the climatic conditions obtaining in Switzerland and for other reasons, we did not wish to be understood as approving all the details of this particular apparatus. With regard to the last paragraph of our correspondent's letter, the relay 5 is intended to be shown at the moment of actuation by the induced impulse, when it is opening the normally closed locomotive circuit. Probably the locomotive and track wiring is very heavy and duplicated, so that such failures, although theoretically possible, are exceedingly improbable.—ED., R.G.]

### **The Signal Engineer's Department**

Ravenscourt Park, W.6.  
February 27

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—I am afraid I am rather late with my comments re the above article. Owing to circumstances, I am able to read THE RAILWAY GAZETTE only in monthly lots, thus I have been unable to contribute my views, although I have had the opportunity of perusing other's comments on the subject.

First allow me to suggest that other comments and views be invited, as the importance of signalling can never be too highly rated. Signal engineers deserve a great deal of praise and rarely receive it—why, I cannot say. Maybe it is because they get on with the job and say little about it. Secondly, I consider that your overseas signal readers should be given some encouragement to show that at least we at home do realise the importance of the Signal Department, even though many overseas railways choose to belittle signalling.

Railways have provided themselves with signals and apparatus for the purpose of safely controlling the running of trains. The efficiency, reliability and utility provided has been so satisfactory that signalling is now standard on all railways. No reason exists why signalling cannot still be used to a fuller extent in aiding and protecting railway transport. With the present day desire to eliminate moving parts wherever possible and to simplify installations, maintenance and operation, there is surely every need to retain the Signal Department as a means to carry out such economic work.

Any improvements that can be made are of paramount importance. New developments are to be explored in the endeavour to assist the railways in running perfect systems. Those that have charge of a railway have only to look back

and see the great changes and improvements made in signalling. Surely no more need be said of the importance of the Signal Engineer's Department?

Railways, especially Colonial, must not forget that they still have at least one imperfect factor to contend with, and that the "human element." This has still to be closely interlocked with signal apparatus. Replacing the Signal Engineer with those not so experienced in interlocking the human element with electrical and mechanical signal apparatus, will only allow relaxation to set in and that leads to disasters.

Yours faithfully,

J. GARDINER  
Signal Engineer (*retired*)

London.

February 28

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I am sure that readers were interested to read "Economy's" letter in last week's issue but I strongly suspect that the writer gave rein to his own point of view with his tongue in his cheek. I feel sure "Economy" would

appreciate the signal engineer much more if he had made it his business to see the results of early signal work and to compare it with the vastly improved results accruing from the present day apparatus. This I would point out is the work of the signal engineer.

Here I would venture to inform "Economy" that the safety of modern signalling should be taken for granted, but due to the present day craze for economy it is in no way perfect and therefore safety cannot be taken for granted.

Signal engineers are alive to these defects but instead of being encouraged to even greater efforts by sympathetic appreciation of their problems, they are constantly faced with cynical critics who are superficial in their examination of the difficulties. Again, the signal engineer has often to work under a management that considers signalling to be a branch of engineering which requires only a small grain of common sense, and appoints an inadequate staff accordingly. Consequently the problems of acceleration of traffic and the economies to be effected by well-planned signal schemes are allowed to be handled by departments which have had little experience of signalling.

Your faithfully,  
"SAFETY"

## PUBLICATIONS RECEIVED

**Industrial Accountancy.** By H. A. Simpson, F.C.W.A. London: Longmans Green & Co. Ltd., 39, Paternoster Row, E.C.4. 9 in. by 6 in. by 1*1/4* in. 268 pp. Price 10s. 6d. net.—Workshop accounting is developing so rapidly nowadays that it is difficult to keep pace with its progress, and hence a really practical standard work on the subject is welcome. So essentially practical and comprehensive is this work that it describes in detail the actual accounting system in force throughout one of our largest organisations in the heavy industries, the United Steel Companies. This up-to-date high-speed and efficient system is clearly placed before the reader by means of specimens of actual forms and descriptions of the methods used. Data are recorded and collated so rapidly that the administration is kept constantly in touch with the financial position and able to frame new programmes and modify its policy at almost any moment. This efficiency is secured by uniformity in costing systems throughout the industry and by the use of mechanised calculating, listing and book-keeping, the unit card system and unit information. As a result, it is possible, for instance, to complete a pay roll for 5,000 hands within three hours, and the weekly costs of all departments and products in six hours. The monthly profit and loss account for each product in each department can also be placed before the management on the first day after the expiry of the month. After dealing with classification, numbers and codes, Mr. Simpson explains the advantages of centralised mechanical calculating, listing and sorting and of using a battery of smaller machines in preference to a few larger ones. The various machines and their functions are described and stress is laid on the importance of efficient communications between each control point in the works

and the central office, for instance, by a pneumatic tube installation, which is described and its lay-out illustrated. All the innumerable ramifications of the steel industry and colliery accountancy are faithfully dealt with, but are too many even to enumerate here. Though the system described is not as it stands directly applicable to railway accounting, a study of this volume may be recommended with a view to the general improvement of business methods in transport or any other industry, or even educationally by the individual.

**The American Railroad in Laboratory.** Washington, D.C.: American Railway Association, Car Service Division Transportation Building, 17th and H Streets, N.W. 9 in. x 6 in. 544 pp. Price 50 cents.—Though the title is discouraging, and the editing rather rough, these things are far outweighed by the many good points possessed by this book. It is a comprehensive analysis of the organisation, technical work and research statistics, development packing and freight claims, in fact every phase of American railway work. The book is designed for the enlightenment of the layman, and is well illustrated, in addition to being presented in an essentially readable and straightforward style. The latter qualification, incidentally, applied to some of the articles more than to others, making the book patchy; a fault which could have been eliminated by more careful editing. The reader is certainly given a full insight into the thoroughness which characterises the American railroads nowadays—a far cry from the days when the representatives of two companies would actually come to bloodshed over the working of a third line. The volume opens with a short historical sketch, passing on to engineering, signalling, telegraph and other technical research. Chapters VI to X

deal with operating, safety measures, medical and protective research, concluding with car-handling and clearing-house matters. Chapter XI deals with Stores Department work, Chapter XII is devoted exclusively to automatic train control, and Chapters XIII and XIV finish up with information on freight claim reduction and the Freight Container Bureau. A useful index adds considerably to the value of the book as a reference volume. This work serves a useful purpose and is well worthy of perpetuation in the United States and of imitation in other countries.

**Holiday Literature.**—Thomas Cook & Son sends programmes of spring and Easter travel facilities and suggestions for the summer holidays of 1934. Among the former are nine-day tours in Switzerland and Italy at reduced rates by the "William Tell" special train. The summer attractions include facilities for walking tours on the Continent and departures from London for all performances of this year's Passion Play at Oberammergau.

**Bearing Metals.**—The Glacier Metal Co. Ltd., of Ealing Road, Alperton, Middlesex, has published a booklet describing the firm's bearing metals, finished bearings, chill cast bronzes and pressure die-castings which will be of interest to railway mechanical engineers. The bearing metals in which it specialises number no fewer than 11, and in addition alloys to Railway Clearing House, many B.E.S.A. and other recognised specifications are manufactured and stocked. Finished bearings of all sizes and kinds are produced from one for a 27-in. journal illustrated, downwards. Linings for bearings are carried out either by hand pouring, by die-casting or by the centrifugal method, and special care is taken to provide suitable grooving for efficient lubrication. Bearing repairs are also undertaken, and altogether the firm may be taken to be conversant with and capable of tackling bearing jobs connected with a very wide range of machinery.

## THE SCRAP HEAP

When closing time came at the village inn, the members of the Angling Club moved off, with as much steadiness and dignity as possible, to the bridge from which they were to fish that night. Seating themselves on the parapet they cast their lines and "fished" steadily until the dawn was breaking. Suddenly, with a roar, the first down-train swept under the bridge.—*From the "A.E.C. Gazette."*

\* \* \*

### SUPER RAIL SALESMEN

A hundred employees of the Great Western Railway Company have just completed an intensive course in the latest high-power methods of selling transport.

The course has been designed to produce the new type of railway salesmen required by modern conditions and for the big traffic drive which is expected as a result of trade recovery.

The syllabus covered not only all the latest developments and facilities the company has to offer, but special attention was given to the development of the following qualities in the future salesmen:—

Personality; imagination; enthusiasm; optimism; confidence; intuition; perseverance; determination; and tact.

Nothing has been left to chance in the training of these men. They must be able:—

To sum up a client in the twinkling of an eye and vary their method of approach accordingly;

To be familiar with the general happenings of the day and the trade barometer through the financial columns of the press;

To be observant. When calling on a client, a bag of golf clubs, fishing tackle, cricket trophies in the hall or office may offer the best avenue of approach;

To make their minds receptive to those of their clients;

To have the interest of traders at heart, and to be anxious to help and guide them in their transport matters; and to know how to terminate an interview, leaving a good impression behind whether business has resulted or not.

\* \* \*

### ANIMAL WELFARE ON SOUTH AFRICAN TRAINS

Special provision is made in South Africa for small animals travelling by train. Guards on arrival at dépôt stations, where time is allowed for engine duties and handing over from one guard to another, advise the station officials in attendance at the van what animals, if any, are in the van or dog boxes and from what point they were despatched. If the animals have been on the journey for more than six hours without attention, they are taken out by the dépôt station officials and given water. Dépôt station masters make suitable arrangements to ensure that dogs and other small animals receive

attention, and utensils for the purpose are kept in a convenient place to be available at all times as required. When senders wish the animals to be fed *en route*, they are requested to endorse on the consignment notes the points where the animals are to be fed. Members of the staff have instructions to assist senders in this respect by furnishing information as to the most convenient dépôt stations where food can be given.

\* \* \*

### WELSH RAILWAY AMALGAMATION

A very excellent suggestion was thrown out at the general half-yearly meeting of the proprietors of the Mid-Wales Railway Company, viz., that there should be a general and universal amalgamation of all the Welsh railways. Although the idea is not a new one, we are glad to see it revived again, and only trust that something practical will come of it. Its advantages to the industrial resources of the Principality, as well as to the holders of the £6,000,000 stock in these various lines, are too obvious to need recapitulation.—*From the "Western Mail," February 23, 1884.*

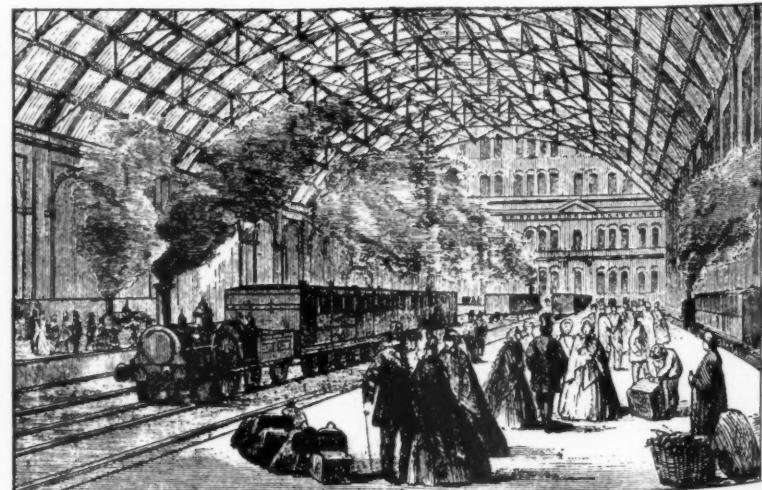
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### 1D.-A-MILE 70 YEARS AGO

Canadian railwaymen who had been congratulating themselves on having inaugurated cent-a-mile excursions find that 70 years ago, while the American Civil War was in progress, a halfpenny-a-mile excursion was run between Chicago and Quebec, a return distance of 2,136 miles over lines now forming part of the Canadian National system. The fare was not quite £4 10s. The excursion was run to enable citizens of Chicago to visit the *Great Eastern*, then the largest steamship in the world, which was lying in Quebec Harbour.

### 75 YEARS AGO

It is recorded in *The Daily Telegraph* for February 26, 1859, that at the half-yearly meeting of the South Eastern Railway Company the chairman referred to the importance of the proposed station at Charing Cross. The line was formally inaugurated from London Bridge to Charing Cross on December 3, 1863, with much ceremony, or, as a contemporary reporter had it, "with all the pomp and circumstance which could be imparted by the visit of a large party of directors and officials, and all the conviviality which could be derived from an excellent déjeuner at the end of the day's proceedings." We reproduce below an old print of Charing Cross station.



Charing Cross station seventy years ago, as portrayed in an old print. Public traffic began on January 11, 1864

## OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

*South African locomotive standardisation and wagon building programme—Job analysis and research in India—Large sum for new Argentine railways—Milan's heavy traffic—Antofagasta-Salta construction agreement*

### SOUTH AFRICA

#### Standardisation of Locomotive Boilers

The present Chief Mechanical Engineer, Mr. A. G. Watson, as soon as he took up the reins of office a few years ago, set to work to reduce the very large number of locomotive classes and types of the S.A.R. system. A series of seven standard boilers has been designed which will suit all the ordinary classes still in service with but trivial alterations. The boilers are a great improvement on existing types and in most cases they result in an increase in overall efficiency.

The first of the well known classes to be fitted with the standard boiler is the 10A class. Coupled with an improved valve design, these engines are now much quicker in getting away from a stop, and are altogether very much smarter and more efficient engines. Indeed, these re-designed engines have proved so successful that similar work is proceeding on the old 7th and 8th classes as they come into shops for reboiling and other heavy repairs. Other classes will be altered as opportunity occurs. Mr. Watson is a firm believer in a deep and wide firebox, as is evidenced in his very successful 16DA class, an engine with splendid steaming capacity up the very long and heavy banks encountered in some parts of the Union.

#### An Experimental 2-10-2 Locomotive

Arrangements are also being made to construct in the S.A.R. workshops an experimental 2-10-2 type locomotive, estimated to cost £7,500 exclusive of the tender. It is designed to develop a tractive effort of 33,000 lb. and will be composed mainly of standard parts of other engines, the boiler to be taken from another locomotive and selected wheels and axleboxes and springs from existing class 8 engines, so that spares required for the new type will be exactly similar to those of others.\*

#### New Goods Rolling Stock

At the end of 1933 there were either under construction in the railway workshops or authorised, 941 goods vehicles, half of them four-wheeled and half bogie. They are of 11 different types, seven bogie and four four-wheeler. In addition, 2,000 four-wheeled, steel, drop-sided trucks have been sanctioned

at a cost of £600,000. Of these 500 will be put in hand at the administration's workshops at once, imported steelwork being used. Before work upon the remaining 1,500 is started, inquiries will be made as to whether the South African Iron and Steel Industrial Corporation can supply at an early date the steel needed for their construction.

### INDIA

#### New Railway

The Railway Board has sanctioned a preliminary engineering and traffic survey for a line of railway on the metre gauge from Pollachi to Vannanthurai, a distance of about 15 miles. The survey will be carried out by the South Indian Railway early in 1934-35.

#### Salary Cut to Continue

The Finance Member recently stated in the Assembly that the Government of India considered that the conditions did not yet justify the removal of the 5 per cent. cut in the pay of Government servants and provision would be made to continue it during the year 1934-35. The cut in pay in the railway services was budgeted at about Rs. 93 lakhs for the current year.

#### Job Analysis Results

In seeking the approval of the Standing Finance Committee for Railways for the expenses consequent upon Mr. Pope's visit, the Railway Board placed before the committee a statement showing the savings expected from the Pope recommendations. Annual savings to the extent of Rs. 24 lakhs are anticipated on the State-managed railways in the following distribution: E.I.R. Rs. 3½ lakhs, G.I.P. Rs. 6½ lakhs, N.W.R. Rs. 12½ lakhs and E.B.R. Rs. 2 lakhs. Last year it was decided to start job analysis on the four State-managed railways and on the Bengal-Nagpur Railway, which work was entrusted to the five officers who were associated with Mr. Pope in his inquiry. Later five other railways, viz., the Assam-Bengal, the Bombay, Baroda & Central India, the South Indian, the Madras & Southern Mahratta and the Burma Railways, set up similar organisations. The total cost of these investigations for 1933-34 is estimated at Rs. 3 lakhs. The Railway Board, however, thinks that the figures of anticipated savings must be accepted with reserve, as retrenchment must be a slow

and deliberate process. It is pointed out that the process of job analysis was started some years ago on the L.M.S. and is still being carried on, as there is much ground remaining to be explored. Besides the working of the job analysis organisation on each railway, the Railway Board is examining other subjects recommended by Mr. Pope. These include the better use of locomotives and railway lands and improved workshop practice. Mr. Pope has been employed during this winter in making a more detailed investigation into other State-managed railways and examining the work done during the year by the railway administrations themselves. The officers engaged in research have met in periodical conference as recommended by Mr. Pope.

#### Earthquake Damage

The Railway Board submitted to the Standing Finance Committee for Railways a memorandum on the damage caused to railway property by the recent earthquake. Damage occurred to three railways, namely, the Bengal & North Western, the East Indian, and the Eastern Bengal, and although the loss of human lives on the B. & N.W. Railway was only two—due to the collapse of the Samastipur workshops—very serious damage was done. On the Tirthut section, owned by the State, not one bridge remains undamaged. Many bridges and structures are almost totally destroyed, while other bridges and buildings are cracked. The cost of repairing the damage to the State section of the Bengal & North Western Railway is estimated at Rs. 20 lakhs, of which Rs. 10 lakhs will have to be spent next year on works considered to be immediately essential.

The fear is expressed that the ensuing monsoon will bring further trouble. It is possible that many bridges now standing up to traffic may fail when the country becomes waterlogged. The possibility of a change in the old drainage lines of the country has also to be reckoned with.

#### Research Work on Railways

Sir Guthrie Russell, Chief Commissioner of Railways, dealt at length with railway activities in his presidential address at the 14th annual meeting of the Institution of Engineers (India) recently held at Delhi. Sir Guthrie enumerated the extensive post-war programme of rehabilitation on Indian railways, and referred to the severe strain to which the railways had been subjected during the last four years of economic storm. No new works of any magnitude had been started in these years during which attention was directed to an intensive search for further means of economy. Further standardisation of equipment, economies in the use of fuel and in expenditure on consumable stores, more intensive use of locomotives, and the abandonment of obsolete or uneconomical types of stock, were some of the efforts of the railways which had

\* We comment editorially upon this locomotive on page 337.—ED. R.G.

March 2, 1934

resulted in very substantial savings. After referring to the valuable recommendations of Mr. Pope, the Chief Commissioner dealt with the application to railways of new methods of investigation employed in commercial and industrial organisations. Research on railways was not confined to technical investigations alone, but should include all scientific inquiry calculated to provide service at the lowest possible cost. A railway was both an industrial and a commercial undertaking. It manufactured or bought locomotives, wagons and a great quantity of miscellaneous stores, and the operation and sale of transportation comprised its commercial function.

#### Classification of Research

Railway research thus came under three main heads: technical and engineering research, research regarding organisation, and commercial research. Standardisation of equipment and investigations into wind resistance were some examples of technical research, while job analysis was the common term applied to research in organisation. Since the Pope Report, many of the larger Indian railways had appointed a special officer designated as "Deputy Agent, Organisation," to direct a systematic examination of every operation in relation to man-power and material. The potentialities of certain sections of a railway in regard to passenger or goods traffic, studies of the consumption of particular commodities in one area compared with those in another and investigations into local circumstances or customs in relation to existing railway facilities, were some questions in which commercial research could be applied.

The Viceroy attended the function and expressed his admiration for the engineering profession.

## ARGENTINA

#### Millions for Public Works

The Argentine President, apparently taking a leaf out of the book of his colleague up north, has signed a decree authorising 140 millions of paper dollars to be spent on a great programme of public works, including buildings, railways, irrigation, port works and drainage, but not roads, which are being dealt with under a special programme, connected with the tax on naphtha, which is being collected for this purpose. It is stated that the amount of the projected expenditure has been fixed by taking into consideration the funds in hand and the prospects for the sale of bonds. The former presumably refers to the amounts obtained recently from the loans for the release of foreign exchange. One of the claims of the decree is that it will combat unemployment. The work to be carried out during the current year in addition to the erection of schools and other public buildings, irrigation schemes in several provinces and sanitary works, includes

the completion of some of the important schemes in the port of Buenos Aires, such as the dock for inflammables, extension of the railway lines and the new port, while the ports and navigation programme for 1934/5 includes works at the Entre Ríos riverside towns of Bahia Blanca, Campana, Ramallo and San Pedro in Buenos Aires and Villa Constitución and Reconquista in Santa Fé. The special building for the Ministry of Public Works in Buenos Aires will no doubt receive a substantial allotment of funds.

#### \$40,000,000 for Railway Construction

Forty millions have been earmarked for railway construction and extension on a large scale and a most ambitious scheme has been drawn up which includes improvements on the following lines at present in operation: Embarcación to Yacuiba; Metán to Barranqueras, Leales to Termas de Rio Hondo; Rosario de la Frontera to Antilla; La Banda to Santiago del Estero; San Juan to Cachal; Federal to Curuzú-Cuatiá and Concordia and San Antonio to Viedma and Lake Nahuel Huapi. The work will include the renewal and consolidation of track, defence works, buildings, bridges, fences, repairs to fixed installations; industrial branches and ferry-boats. It is also intended to continue work on the following extensions: Salta to Socorro, Mendoza to Pie de Palo and Milagros to Quirós, and to start work on the new lines from Tostado to General Pinedo, San Javier to Alejandra and Joaquín V. González to Pichinal, and survey of a line from Manuel F. Mantilla to Posadas.

## ITALY

#### New Line Sanctioned

The first section of the Portogruaro-Sassetto line in the Venetian Province has been authorised. The line will improve international connections.

#### Italian Railway Offices Abroad

To mark the 20th anniversary of the opening of the first two Italian State Railway Offices abroad (of which one is in London), the C.I.T., which since 1926 has been responsible for the Italian Tourist Offices abroad, has published some interesting information. The C.I.T. has now 20 offices abroad and 50 in Italy, besides being represented by over 800 foreign tourist offices in all parts of the world. Tourist traffic in Italy has developed very considerably, and there is no doubt that the activity of the C.I.T. is partly responsible for this. The number of foreign tourists in 1910 was 590,000 and fell to 180,000 in 1919. It reached the figure of 1,350,000 in 1925 and, though definite figures are not yet available, it is estimated that 2,500,000 tourists visited Italy during 1933. Tickets issued by the Italian State Railway Offices abroad in 1913 were

valued at £127,000 (at to-day's sterling value), whilst those issued in 1933 totalled £955,000, the C.I.T. offices being responsible for £671,000 of this total.

#### Traffic at Milan

The number of passenger coaches dispatched from Milan Central station during 1933 was 392,000, which, at an average of 35 passengers a carriage, represents an outward movement of 13.7 million passengers. Assuming the same figure for incoming traffic, a total of 27.4 million passengers used the station, or a daily average of 75,000 passengers. The total number of incoming and outgoing passenger trains was 112,000, to which must be added 6,000 trains in transit and 6,000 trains for perishable goods. Over 2½ million tickets, valued at 68 million lire (£1,100,000), were sold at the Central station and 6,800 tons of luggage were dispatched, representing a revenue of £119,000.

#### Austrian Federal Railways President visits Italy

The President of the Austrian Federal Railways, General Vaugoin, paid an official visit to Rome, where he had several conferences with the Minister of Communications and the General Manager of the State Railways on matters of joint interest to both countries. He also took the opportunity to study personally the organisation of the Italian State Railways. Austrian traffic is, of course, of primary importance to Trieste, and the Italian State Railways have for some time past allowed preferential tariffs on Austrian import and export traffic via Trieste. On his return journey General Vaugoin was taken in a Littorina railcar over the Bologna-Florence Direttissima.

## CHILE

#### Antofagasta-Salta Railway

A telegram from Santiago states that the well-known Argentine contracting firm of Hume Bros. has come to an agreement with the Chilean Government for the construction of the Chilean section of the new international line between Antofagasta and Salta in that part comprised between Augusta Victoria and Milac.

#### Chilean Transandine Railway

The Chilean Transandine Railway administration is reported to have announced that traffic would be resumed on January 31 by the running of two trains a week in each direction between Los Andes and Las Cuevas, the rest of the journey to and from Mendoza being made by motor car. This agrees with advices from the Argentine side that the road has been repaired in those places where it was damaged by the recent floods, but motorists have been cautioned to drive with the greatest care, as many of the repairs are purely temporary.

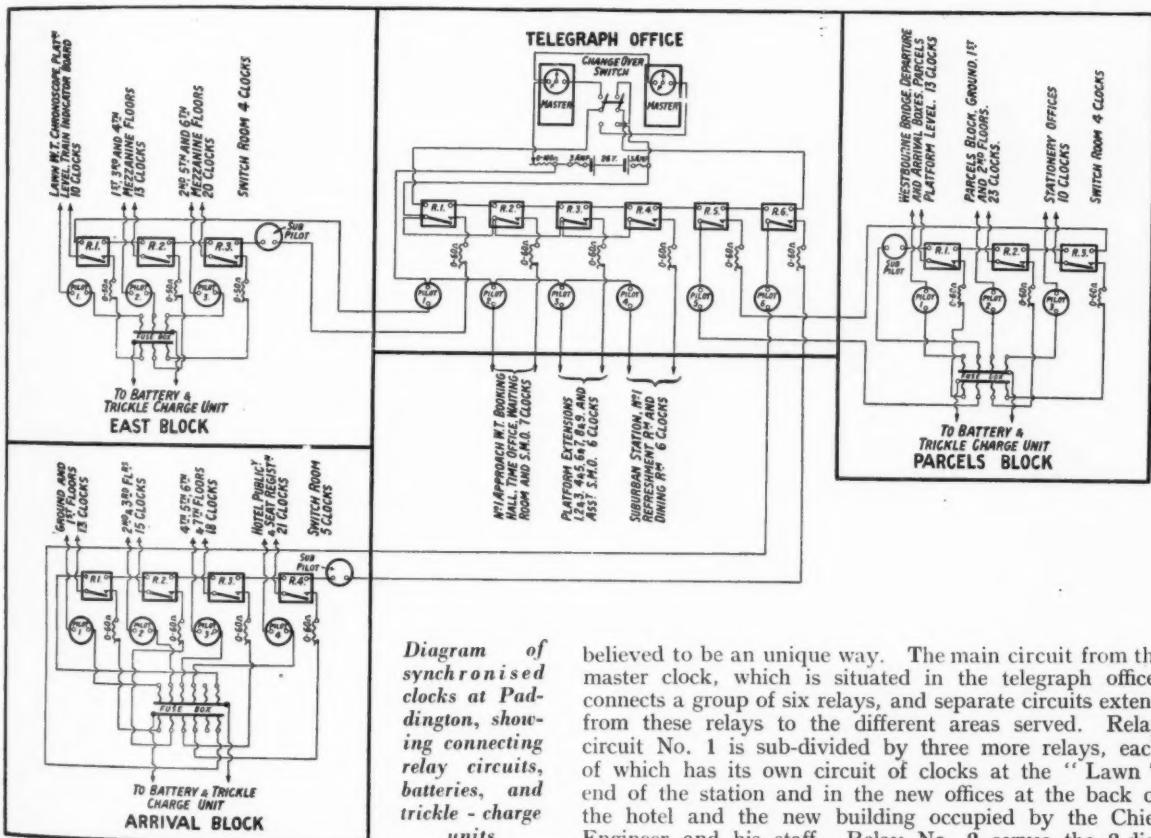
## SYNCHRONISED CLOCKS AT PADDINGTON, G.W.R.

*As part of the general improvements, all the public clocks, as well as those in the offices, are electrified*

In connection with the improvements at Paddington station, which were the subject of an illustrated article in our issue of September 8, 1933, the time keeping arrangements have been overhauled and brought up-to-date. All the clocks on the platforms and in public offices

made to synchronise with the master clock. Structural alterations necessitated the removal of the "Lawn" clock, the dial of which was sent to the company's Reading workshops to be renovated before refixing.

The electric clock system has been laid out in what is



have been electrified and the opportunity has also been taken to instal electric clocks in the new office buildings. The Pul-Syn-Etic system of Gent & Co., Leicester, has been adopted for the purpose, and what is known as a Waiting-Train movement, made by that firm, has been fitted to each of the large clocks, i.e., the 8 ft. dial on the footbridge at the "Lawn" end of the station, the 3-dial 7 ft. 6 in. clock on No. 1 platform, and the clock facing the approach road. The Waiting-Train movement has a heavy pendulum which is kept in motion by power taken when necessary from a local battery, and by its use the hands of the clock are moved steadily onward, thus avoiding the rather pronounced jumps which would be given by an impulse in cases where such large dials are employed. The movement disconnects from the motion shortly before each half minute impulse is transmitted by the "master," this impulse causing movement and motion to re-engage, and thus the recorded time is

believed to be an unique way. The main circuit from the master clock, which is situated in the telegraph office, connects a group of six relays, and separate circuits extend from these relays to the different areas served. Relay circuit No. 1 is sub-divided by three more relays, each of which has its own circuit of clocks at the "Lawn" end of the station and in the new offices at the back of the hotel and the new building occupied by the Chief Engineer and his staff. Relay No. 2 serves the 3-dial clock on No. 1 platform and other timepieces in public offices in the main portion of the station premises adjoining that platform. Relay No. 3 picks up the double dial clocks on the platform extensions and relay No. 4 those on the suburban station (late Bishops Road) and in the refreshment and dining rooms on No. 1 platform.

Relay Circuit No. 5 is again sub-divided into three sub-circuits each taking a section of the parcels office block, the stationery offices and the new signal boxes. Relay No. 6 is sub-divided into four sub-circuits taking sections of the new building on the arrival side of the station, occupied by the Chief Goods Manager and Divisional Superintendent.

Power to operate the clock system is obtained from banks of trickle-charged accumulators situated at the main and sub-relay stations. The adoption of this method avoids interference with the circuits and prevents the stoppage of clocks in the event of a failure in the main supply. Pilot dials are placed in series with each relay

and sub-relay to facilitate checking of time on the different circuits. Among the many new electrical clocks provided, those in the public rooms and offices are particularly attractive in appearance, that in the new tea room on the arrival side forming part of the central mirror, and that in the adjoining buffet being made in walnut with inlaid holly numerals, in keeping with the furnishing of the room. Another effective though simple timepiece has been fixed in the new entrance to the hotel. It consists of chocolate coloured numerals fixed direct in the plasterwork of the wall.

There are two master clocks, one of which is kept in reserve, available for switching in at a moment's notice, and as these masters can be adjusted to such a fine point of accuracy that the margin of variation is reduced to a few seconds in three months, the benefit accruing from a synchronisation of approximately 200 clocks on the station with these masters is apparent.

The chronoscope erected by William Whiteley Limited, as part of that firm's attractive advertisement on the arrival side, is also controlled by the company's master clock.

### The Trans-Saharan Railway and the Gauge Question in Africa

**D**ETERMINED efforts are being made in certain French circles to stimulate interest in the Trans-Saharan Railway and to urge the necessity of constructing it, in spite of the view, which appears to prevail in official quarters, that a motor road would be sufficient for all practical purposes. Foremost among the advocates of the railway is a M. P. Roux Berger, an aeronautical engineer, who delivered lectures on the subject at the Colonial Exhibition in 1931 and has since published articles in the *Revue Economique Française*. A motor caravan first traversed the Sahara Desert in 1923, but the event was regarded by the French public as of little more than sporting interest. A committee was formed in 1927 to enlist support for the railway project in Parliamentary and business circles, and in 1929 it reported in favour of the undertaking. The Government had many other claims on its attention at the time and practically nothing was done. M. Berger complains of the apathy prevailing in France towards all projects of this kind. It is commonly supposed that the work would be of great magnitude, comparable with the making of the Panama Canal, but this is not so. The name Trans-Saharan has a forbidding sound. Had the line been called prosaically the Oran and Gao Railway, the opposition would have been deprived of much of the imaginative public's support. Contrary to most other trans-continental lines of this kind, the Trans-Saharan route runs in a north-south direction and thus connects latitudes of very different characteristics, itself a guarantee of an exchange in commodities being stimulated by it. The obstacles are much exaggerated. It is possible to avoid the sand dunes, and the fear of attack by hostile tribes may be dismissed at the present day. The climate is not an unhealthy one, being dry with cool nights. By the use of excavators and rail laying machines it would be possible to work with a minimum number of workmen, and in this way whatever dangers exist from illness could be reduced to a very small amount.

The present motor track would serve to facilitate the work. Water is not a serious question, as diesel locomotives could be used, or condensing steam locomotives, of which there is now a reliable type available. M. Berger laments that France is behind other nations in the diesel traction field. He dismisses as fantastic the idea that aeroplanes can do all that is wanted to meet transport requirements, and is equally persuaded that motor vehicles are inadequate. In fact, he envisages the construction of a solidly built line capable of taking heavy freight trains of the American type, being convinced that the development of French West Africa and other districts cannot fail to bring enormous traffic, if handled on statesmanlike lines. France can find the money, if she will, he states. She has found enough to finance countries which are scarcely even friendly to her, and it is time to cease such a policy and consider French needs in a far-sighted spirit. Apart from the freight traffic

between the western colonies and the Algerian ports, it is not unreasonable to suppose, M. Berger declares, that a fair passenger and tourist traffic would develop. Such a route would find favour with the French, who have, most of them, an antipathy to sea travelling, and encourage them to visit their West African settlements. More important than these arguments, however, M. Berger says, is the fact that if France delays action in this respect much longer, objections may be made by the other powers, who will say that they should be allowed to do something if France will not.

Convinced of the necessity of making the line, M. Berger has been led to study the African gauge question. He points out the great benefits that have accrued to the United States from the universal adoption of the 4 ft. 8½ in. gauge before differences of gauge had been allowed to develop too far, and contrasts this policy and its results with the state of affairs in South America, Australia, and Africa, where confusion prevails, with no prospect of much improvement owing to the enormous expense of making a change. France must have a policy in this matter which should aim at diminishing the existing confusion as much as possible and giving the French districts direct intercommunication for through traffic without break of gauge. She should also think of the Trans-Saharan in association with the ultimate completion of the Trans-African route from the Cape to Cairo. Broadly speaking, there are three zones of gauge in Africa: the South, predominantly of 3 ft. 6 in.; the Central Zone, where metre gauge lines are largely found; and the North, where the standard European gauge is in use on several of the principal routes. There are exceptions, of some importance in certain cases, but a process of elimination should be applied to them, so as to reduce the three zones to uniformity within their areas. Complete uniformity appears hopeless of attainment, as South Africa would not, even if it could, now abandon its 3 ft. 6 in. gauge, while it is absurd to suppose that the standard gauge would disappear in Egypt in favour of a narrower one. The proximity to Europe makes the general adoption of that gauge in the north essential. Odd gauges, such as 3 ft. 5½ in., should be altered at the earliest moment. The principal aim should therefore be to have but one break of gauge on the Trans-African route and none between the French western ports and Algeria. The Trans-Saharan should consequently be built on the 4 ft. 8½ in. gauge, and the metre gauge lines in French territories should be converted to it. Large sums of money have been voted for the improvement of some of these railways, which are very poorly constructed and unable to cope even with the traffic now offering, so that the opportunity should be taken to make the change. Even where the building of an isolated metre gauge line seems of temporary advantage, the works should be made large enough at the beginning, as far as possible, to allow the wider gauge to be put down later.

## UP-TO-DATE SIGNALLING IN NORTHERN IRELAND

*Colour light signalling has been extended from Belfast to cover the new Greenisland loop line, the junctions of which are power operated*

**A**N interesting feature of the new loop line\* at Greenisland on the London Midland & Scottish Railway (Northern Counties Committee) is the system of power signalling which has been installed. The construction of the loop line has provided an opportunity for extending to Greenisland the colour light signalling which was installed at Belfast (York Road) station seven years ago, as described in THE RAILWAY GAZETTE of September 23, 1927.

The installation, as shown in the diagram, extends over the section of double line between Belfast and Greenisland, the new loop line between Bleach Green and Monkstown junction, and a single line stretching from Monkstown junction to Greenisland, which completes the triangle. The three junctions are controlled from Greenisland. The construction of a new signal-box at Greenisland station has enabled four boxes to be dispensed with. The section of the line between Belfast and Bleach Green junction is controlled by automatic signals.

The new box at Greenisland station has 62 levers, the points and signals within the station limits being mechanically operated. The signals approaching Monkstown junction and Bleach Green junction are of the searchlight type, controlled from the new signal-box. The points at those junctions are long-distance electrically operated and controlled from the new signal-box, which is approximately two miles distant from each.

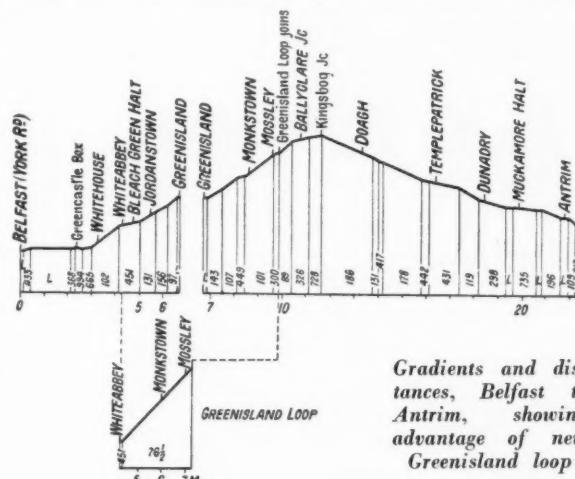
The signal levers are fitted with lever locks to provide the necessary normal and approach locking, automatic time releasing being provided for the latter. The controlled signals are indicated in the cabin by polarised indicators fitted above the signal levers. Electrically operated points are track locked in the normal and reverse positions by means of lever locks fitted to the levers, and normal and reverse check locking is provided.

The point machine at Bleach Green junction is of the low voltage battery operated type, the operating batteries being trickle charged by metal rectifiers fed from the a.c. ring mains. Hepper's key control has been provided at these points to facilitate operation by hand crank in the event of failure of the point machine. The crossover road and facing points at Monkstown junction are operated by hand generator at 100 volts. This was provided because the number of movements to and from the branch lines is comparatively few and also to save the cost and maintenance of secondary batteries. Constant point indication is given over the point levers by means of polarised indicators which indicate *normal* and *reverse*.

Another interesting feature is the control of the Tyer's one-wire, three-indication block instruments which operate between Greenisland and Ballyclare junction. This control ensures that the levers operating the crossover-road must be normal, the lever operating the facing points normal or reverse, and the track circuits in rear of the junction home signals unoccupied before *line clear* can be given to Ballyclare junction. When a train has been accepted, necessitating the turning of the commutator from the *line blocked* position, the crossover-road cannot be operated and the facing points can be reversed only after an automatic time release has operated. Provision is also made for placing and maintaining the block instru-

ments at *train on line* and ringing a buzzer in the event of a train proceeding into the section without the train-entering-section signal having been sent forward. All starting signals have been provided with normal locks to ensure that they cannot be pulled until *line clear* has been received. The illuminated diagram is of the steel plate type.

The new box is at the end of the island platform at Greenisland and, as the space available was restricted, it was built to a special design, as shown in one of our illustrations. The upper part is carried out in the standard N.C.C. type of timber framing, and a large amount of glass has been provided to give the signalman the maximum view of the operations in the yard. The ground floor houses the relay cabinets, the apparatus racks for the train



Gradients and distances, Belfast to Antrim, showing advantage of new Greenisland loop

describers, lever locks and circuit controllers. The mechanical frame is carried by steel channels which are supported on the horizontal member of the concrete frame. The portion above this horizontal member has been turned into a mezzanine floor, which contains the mechanical locking troughs. The whole of one side of this floor and the whole of the opposite side of the ground floor have been provided with glass to ensure adequate lighting for the necessary adjustments to the locking and the electrical apparatus. Incidentally, it should be mentioned that the lever number plates are of Ivorine material and are easily detachable for marking or alteration; also that the handles for all electrically controlled levers have been shortened to remind the signalman that he need not exert the energy usually required for a mechanically operated lever.

Cables running round the installation are carried on raw hide suspenders from a steel wire supported on concrete posts and, where passing under railway lines, are run in key fibre conduit. They are all of the Ite insulated 660-volt type except between apparatus cases and searchlight signals, where multicore cable has been utilised.

There are two 2-lever ground frames at Bleach Green junction, one operating a siding on the down Shore line to Lame and the other operating an emergency crossover. These are controlled from the new signal-box at Greenisland. There is also a 3-lever ground frame at White-

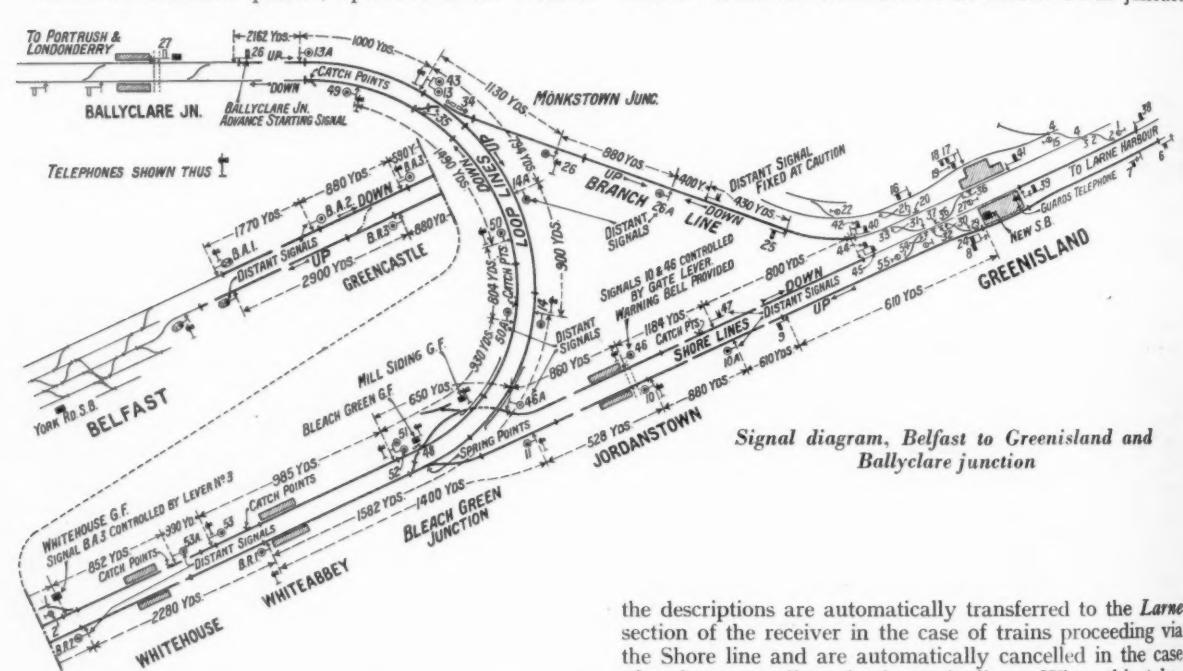
\* See THE RAILWAY GAZETTE of January 19.

house siding on the automatic section between Belfast and Bleach Green junction. No. 3 lever controls BA3 and for automatic working stands in the reverse position. No. 1 controls the points and No. 2 is a shunt signal from the siding; the necessary approach and back-locking being provided. Track circuit indication is given in the ground frame.

At Jordanstown there is a single lever ground frame for the control of the level crossing gates. The gates are closed to road traffic by hand and mechanically locked by the lever, which is back locked by the approach of a train in either direction. The control of signals 10 and 46 is taken over the gate lever normal, thus ensuring that neither of these signals can be put to "clear" while the gates are open for the roadway. Audible warning is provided in the form of a gate bell, which rings when the track circuit at Whiteabbey or Greenisland is occupied and No. 9 or 51 signals are at "clear."

Automatic detonator placers, operative in the event of

failure of a signal lamp, have also been provided at certain distant signals. These consist of a rotary slot which is normally energised and is released when the lamp burns out, mechanically placing two detonators on the rail. Should the first detonator fail to explode the second is brought into use. This second detonator is actually blown off the line by the explosion of the first.



Signal diagram, Belfast to Greenisland and Ballyclare junction

In the event of failure of a signal lamp in the automatic section between Belfast and Bleach Green junction, proving circuits have been provided to ensure that the signal in rear will not go to "clear" until the lamp has been replaced.

Catch points have been provided in the positions indicated on the plan, and these have been fitted with track circuit interrupters. Telephone circuits of the omnibus type have been provided to enable enginemen to communicate with the signalman when detained at a signal. Separate circuits are provided for the up and down lines.

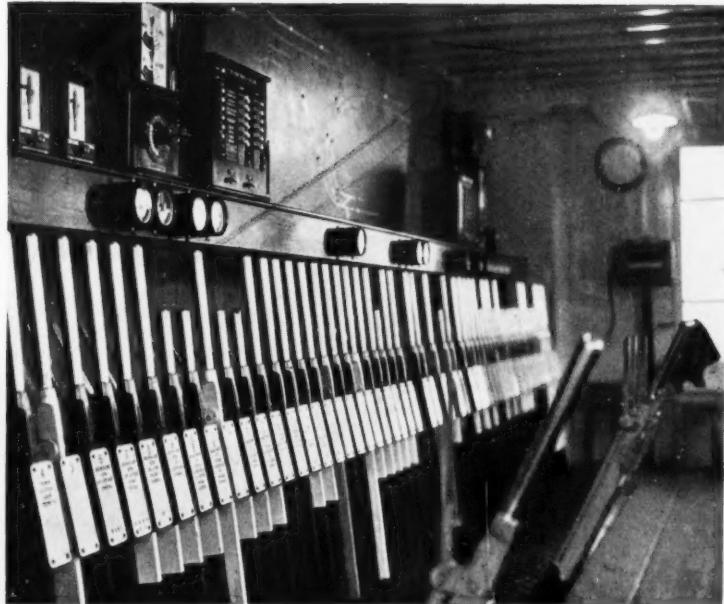
In addition to the illuminated diagram, a system of train describers has been installed between Belfast and Greenisland which enable the signalmen to be continually informed in the correct sequence of the class and destination of trains approaching. Each signal-box is equipped with a transmitting and receiving instrument. When the class of train about to enter the section, say at Belfast, is known, the signalman depresses a key corresponding to the description of the train concerned. The operation of the key stores up a code of impulses in the apparatus and lights a check lamp beside the depressed key. Descriptions set up may be eliminated from the transmitter by the momentary depression of the re-set plunger. When the train enters the section the indication code is automatically sent forward to Greenisland, where a lamp corresponding to the train description is illuminated on the *Main* or the *Larne* section of the receiver at that box. This lamp also indicates whether the train described is the first or second in the section, storage being provided for a third train. When the operation takes place a lamp lights at the transmitting end which gives a visual record of the description of the last train to enter the section ahead. When the train arrives at Bleach Green junction

the descriptions are automatically transferred to the *Larne* section of the receiver in the case of trains proceeding via the Shore line and are automatically cancelled in the case of trains proceeding via the main line. When this takes place the descriptions of following trains are automatically stepped forward so that the description of the second train becomes the first train and the train in storage becomes the second. A *not described* lamp is also provided on the receiver at Greenisland signal-box, which will be illuminated in the event of a train entering the section without having been described.

In the case of the up line describer the operation of the transmitter is similar. Automatic transmission, however, is not possible in this instance from Greenisland and Ballyclare Junction, since the order in which trains leave these points is not necessarily the order in which they will arrive at York Road. Automatic transmission is, however, provided by the drop and pick-up of the track circuit covering the spring points at Bleach Green junction, and this allows ample time before the train arrives at York Road. Furthermore, the setting up of a description in the *Larne* section releases a lock on No. 11 signal lever, and the setting up of a description in the *Main* section releases a lock on No. 14 signal lever. Therefore it is impossible simultaneously to release the locks on signal levers Nos. 11 and 14, for the reason that two descriptions cannot be set



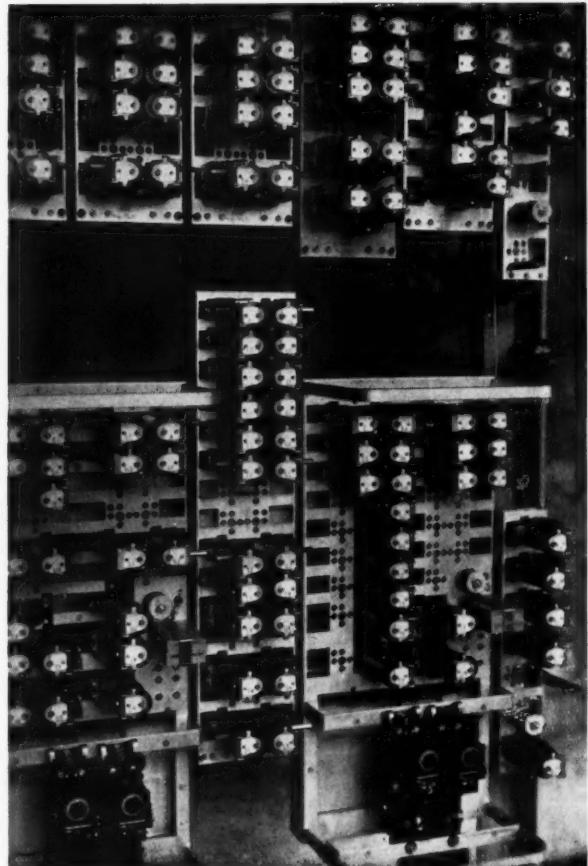
The new Greenisland signal-box from the down platform



Interior of signal-box, showing illuminated diagram, lever frame and train describers



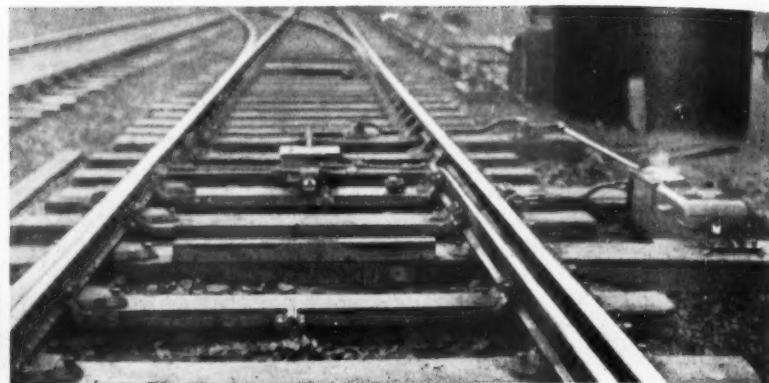
Layout of relays, &c., in cabinet on ground floor of signal-box



Apparatus rack for train describers with dust covers removed



Searchlight signals, Bleach Green junction



Battery-operated points layout at Bleach Green junction

up simultaneously on the describer. The describers are operated at 24 volt d.c. from a battery of secondary lead cells which are trickle-charged by metal rectifiers.

The main power supply is taken from the Belfast Corporation at 380 volts, single phase, 50 cycles, and this is transformed to 220 volts, 50 cycles. Main cables carry the transformed supply throughout the installation to the various positions, whence it is utilised for the lighting of signals, feeding of track circuits and other requirements. Failure of the power supply is safeguarded against by the provision of an auxiliary supply from the Carrickfergus Urban Council at 400 volts, single phase, 50 cycles which, in an emergency, is automatically switched in by means of a contactor relay.

The whole of the work was carried out to the requirements of Major Malcolm Speir, Manager and Secretary of the N.C.C. The material was supplied by the Westinghouse Brake & Saxby Signal Co. Ltd., with the exception of the train describer apparatus which was furnished and installed by the British Power Railway Signal Co. Ltd. The work was carried out by the staff of the Northern

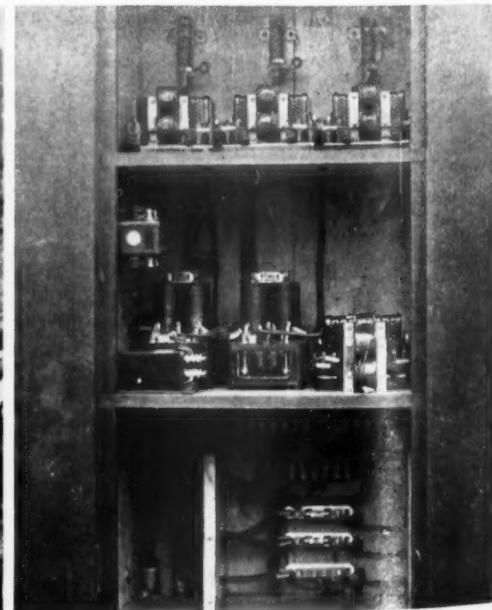
Counties Committee under the direction of Mr. R. L. McIlmoyle, Civil Engineer, and under the immediate supervision of Mr. Wm. Marshall, Electrical and Signalling Assistant to the Civil Engineer and Locomotive Superintendent.

#### Signalling of Crossing Places

Consequent upon the opening up of the new Greenisland loop line a considerable speeding up of train services to and from Portrush and on the Larne line will be introduced during the coming summer. The down loops on the single line stations between Ballymena and Portrush on the main line and Whitehead and Larne Harbour on the shore line are being straightened out for either-direction through running which will involve a complete revision of the existing signalling arrangements. The scheme includes the provision of interlocking between the tablet instruments and the starting signals; the installation of track circuiting through the straight road at the various stations; and also long section tablet switching between certain points.

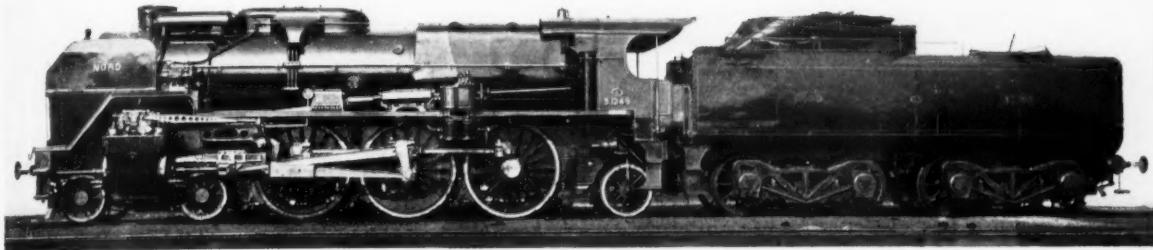


Automatic detonator placed



Typical apparatus case

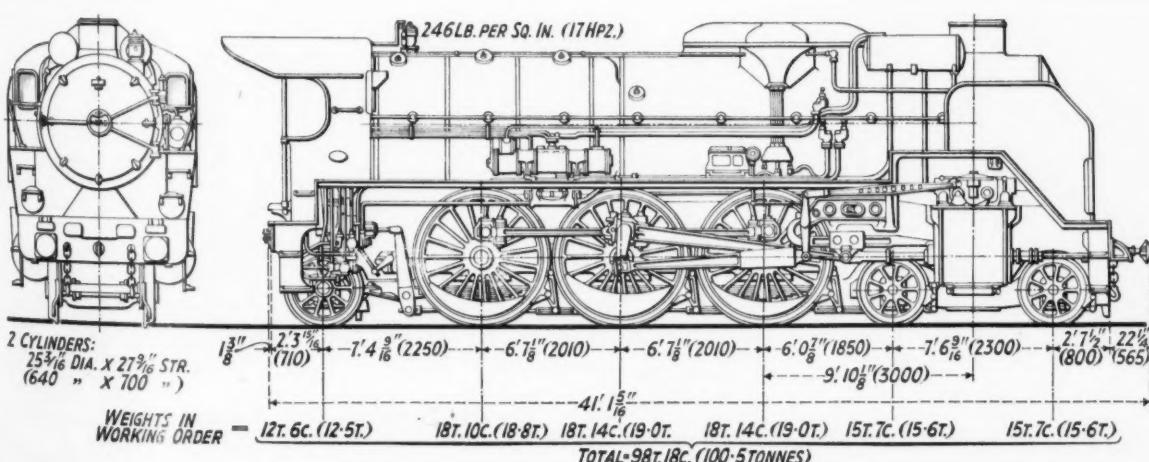
## FRENCH COMPOUND LOCOMOTIVE CONVERTED TO SIMPLE



A YEAR or two ago M. de Caso discussed the future of locomotive design on the Northern Railway of France in a paper presented to the French Society of Civil Engineers, and forecast the carrying out of comparative experiments between compound and simple expansion locomotives. In pursuance of these experiments two of the standard Super-Pacific locomotives of the Nord have been converted from four cylinder compound to two cylinder simple, and we are now enabled to illustrate and give the leading dimensions of the first of these engines, No. 3.1249. It has been equipped with two outside cylinders having the large diameter of  $25\frac{5}{16}$  in. and a stroke of  $25\frac{5}{16}$  in. Distribution is by means of Cossart cam-operated valves, an illustrated description of which appeared in THE RAILWAY GAZETTE of March 17, 1933, page 383, in connection with our article on the new 2-8-2 tank locomotives, series 4.1200, which are fitted with these valves. Locomotive No. 3.1249 is one of the earlier series of Super-Pacific locomotives numbered 3.1201-3.1250, which were built eleven years ago. The later series 3.1251-3.1290 were placed in service about 1930 and incorporated several modifications, including an increase in the boiler working pressure from 227 lb. to 246 lb. per sq. in., the use of large piston valves for the low pressure cylinders, and the strengthening of the frame structure. Modified streamlining was also incorporated, and the engines now rebuilt have these characteristics also.

We give alongside a table of the principal dimensions of the rebuilt locomotive together with those of the Super-Pacific compound series 3.1251.

	Two-Cylinder Simple, Nos. 3.1249-3.1250	Four-Cylinder Compound, Nos. 3.1251-3.1290
Cylinders, diam., h.p. ...	640 mm. ( $25\frac{5}{16}$ in.)	440 mm. ( $17\frac{5}{8}$ in.)
" " l.p. ...	—	620 mm. ( $24\frac{1}{16}$ in.)
" " stroke, h.p. ...	700 mm. ( $27\frac{9}{16}$ in.)	660 mm. ( $26$ in.)
" " l.p. ...	—	690 mm. ( $27\frac{3}{16}$ in.)
Coupled wheels, diam. ...	1,900 mm. (6 ft. 2 $\frac{3}{4}$ in.)	1,900 mm. (6 ft. 2 $\frac{3}{4}$ in.)
Bogie (or leading bissel) wheels, diam. ...	950 mm. (3 ft. 1 $\frac{1}{2}$ in.)	950 mm. (3 ft. 1 $\frac{1}{2}$ in.)
Trailing bissel wheels, diam. ...	1,040 mm. (3 ft. 5 in.)	1,040 mm. (3 ft. 5 in.)
Boiler working pressure ...	17 h.p.z. (246 lb. per sq. in.)	17 h.p.z. (246 lb. per sq. in.)
Boiler heating surface— Tubes and flues ...	175.68 sq. m. (1,890 sq. ft.)	194.5 sq. m. (2,093 sq. ft.)
Firebox ...	20.30 sq. m. (218 sq. ft.)	20.30 sq. m. (218 sq. ft.)
Superheater ...	66.66 sq. m. (717 sq. ft.)	57.2 sq. m. (615 sq. ft.)
Total ...	262.64 sq. m. (2,825 sq. ft.)	272.0 sq. m. (2,926 sq. ft.)
Grate area ...	3.48 sq. m. (37.4 sq. ft.)	3.5 sq. m. (37.7 sq. ft.)
Wheelbase, rigid ...	4,020 mm. (13 ft. 2 $\frac{1}{4}$ in.)	4,020 mm. (13 ft. 2 $\frac{1}{4}$ in.)
" total engine ...	10,420 mm. (34 ft. 2 $\frac{1}{4}$ in.)	10,420 mm. (34 ft. 2 $\frac{1}{4}$ in.)
Weight of engine in working order	100.5 metric tons (98 tons 18 cwt.)	100.5 metric tons (98 tons 18 cwt.)
Adhesion weight ...	56.8 metric tons (55 tons 18 cwt.)	56.8 metric tons (55 tons 18 cwt.)
Maximum theoretical tractive effort : Compound ...	—	17,160 kg. (37,840 lb.)
Simple ...	25,825 kg. (56,944 lb.)	23,030 kg. (50,780 lb.)



Four-cylinder 4-6-2 compound Super-Pacific locomotive of the Chemin de fer du Nord rebuilt as a two-cylinder simple with Cossart cam-operated valves

## ELECTRICALLY-OPERATED MOBILE CRANES

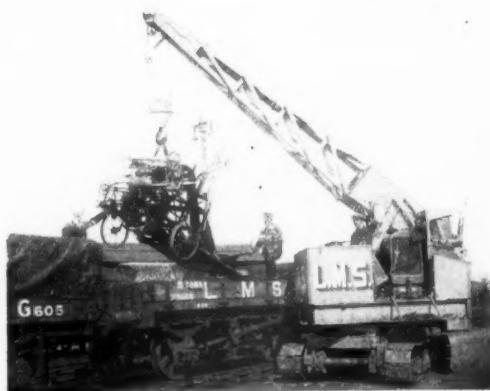
### *Some notes on the various methods of control*

FROM the successful operation of the earlier electrically-operated mobile cranes and the electrical and mechanical data obtained from them, under practical working conditions, both crane-makers and manufacturers of electrical equipment have been enabled to introduce improvements which have been incorporated in later machines. In the design of electrical equipment, for example, attention has been paid particularly to ease and simplicity of control. Methods of control may be placed in three categories:—(a) Plain rheostatic control; (b) Throttle control, and (c) A combination of (a) and (b).

The equipment for a crane with ordinary rheostatic control comprises a constant-speed generator driven by a diesel or petrol engine and delivering a constant d.c. voltage to the motors for the different motions, the speeds of the latter being controlled through the medium of reversing drum controllers and series resistances. A crane operating on the throttle control principle is equipped with a variable-speed generator driven by a petrol engine, the speed of which is controlled by a foot pedal acting

is stalled and carrying the maximum current, thus ensuring that the motor is stalled when developing its maximum torque.

Taking the travel motion as an example, the motor is first connected directly to the generator as mentioned above, with the generator running at engine idling speed.



A 6-ton caterpillar mobile crane with B.T.H. control in operation at an L.M.S.R. depot



A 6-ton caterpillar mobile crane with lifting magnet equipment and B.T.H. rheostatic throttle control, L.M.S.R.

on the engine accelerator. The motors for the different motions are each provided with a drum type reversing switch and are switched directly across the generator with the engine just ticking over, the motor speed being varied by a variation in the generator voltage as the speed is increased or decreased. The generator operates as a plain self-excited machine, but the poles have slots cut in them so as to form a highly saturated portion of the magnetic circuit. The maximum current can be arranged to occur at a voltage equal to that across the motor when the latter

is stalled and carrying the maximum current, thus ensuring that the motor is stalled when developing its maximum torque. The generator will only be giving a very small current at this speed, insufficient to start the motor. The engine is then accelerated until the generator is delivering sufficient current to start the motor, and if the generator speed be kept steady at this value the motor will continue to run at a creeping speed, but any further increase in engine speed will result in a higher speed of travel until normal full speed is reached. If the crane comes to an incline the motor will demand more current from the generator, and by virtue of the special characteristic this increase in current is accompanied by a reduction in voltage and the crane slows down until, if the gradient becomes too severe, it eventually stops, although the engine will still run at top speed, without excessive strain on the gears since the maximum motor torque is definitely limited. Other motions operate in the same way, giving automatic protection as the load varies, and at the same time allowing the driver to have complete and accurate control under all conditions of load, by varying the engine speed.

A mobile crane equipment incorporating a combination of both rheostatic and throttle control requires a variable speed variable-voltage generator, which can be run as a constant-speed constant-voltage machine if a constant potential is necessary.

Such a scheme of control was desirable in the case of a six-ton mobile crane equipment recently supplied to the L.M.S.R. for operating at a stores dump in Scotland. In this particular equipment a lifting magnet was incorporated for handling expeditiously general iron and steel scrap, and such items of stores as steel chairs, rails, girder sections and other similar material. It will be realised that although a constant potential is essential for energising the lifting magnet, the latter is only in use a portion of the time, and consequently for the travel, slew,

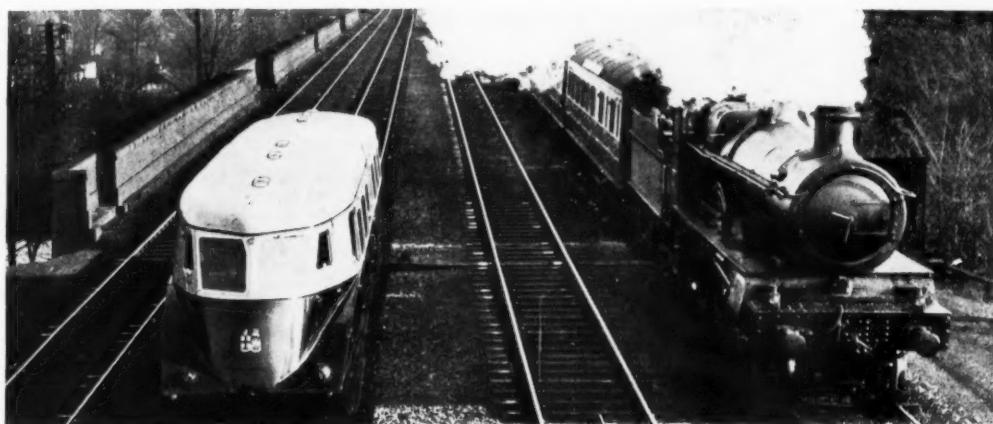
and derrick motions when ordinary slung loads are being handled, throttle control is definitely advantageous.

The electrical equipment for the cranes referred to was supplied by The British Thomson-Houston Co. Ltd., and an important feature of the design and arrangement of this equipment is its accessibility. The physical dimensions of such cranes are strictly limited, as they are frequently called upon to operate in confined spaces, and must be capable of being loaded up for transport by rail

to different depots; consequently every possible advantage has to be taken of available space for mounting the electrical equipment. It will be noticed from the accompanying illustrations, which are reproduced by the courtesy of Henry J. Coles & Co. Ltd., Derby, who are the manufacturers of the mechanical equipment, that these mobile cranes are designed to travel either on caterpillars or rubber-shod wheels according to the class of surface available in the area in which they are intended to operate.

## AN EFFICIENT VENTILATOR

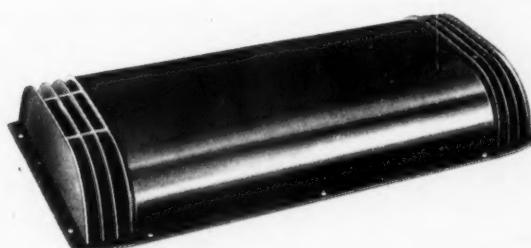
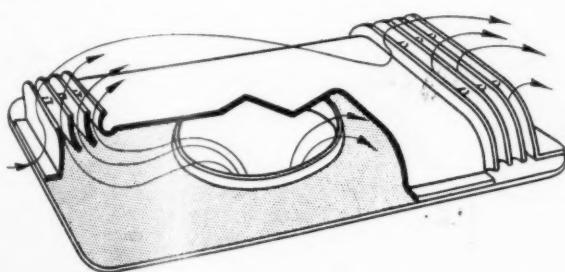
*The Colt patent ventilator for railway vehicles*



*The G.W.R. streamlined diesel railcar, now on regular local service, running alongside a West of England express at Maidenhead bridge. The colt ventilators will be noticed on the roof of the railcar.*

DURING a trial trip of the A.E.C.-Hardy streamlined diesel railcar on the G.W.R. we were much struck by the fact that, although there were about 30 passengers (mostly smoking intensively) on board, and that, the day being cold and the heating apparatus in full and effective operation and no window open, yet the car never became stuffy. The reason for this happy state of affairs must, it seems, be attributed to the Colt patent ventilator, a product of G. D. Peters & Co. Ltd., of Slough, with which this vehicle was fitted. The type of ventilator used is shown in the accompanying illustrations, the second one of which indicates the principle upon which it works. It is of simple and robust construction and

has no moving parts to get out of order or require lubrication. It is made in two types, the B.S. type for road vehicles and the P. type for railway coaches. The former is the simpler of the two, is made in six sizes, and ensures almost equally efficient ventilation whatever the direction of the wind. As the largest size has a height of only  $2\frac{1}{2}$  in., it projects little from the roof of the vehicle. Entry of water, dust or exhaust gases is completely excluded. The type P. projects from 3 in. to 7 in. according to which of its three sizes is used, the largest size being mainly for perishable-traffic vans: it too, excludes all water and cinders, and is very efficient both in providing fresh air and in extracting the vitiated air.

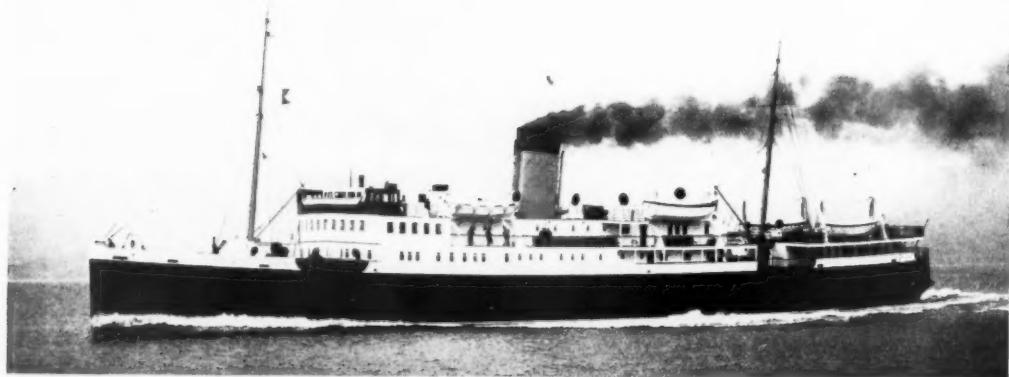


*Type B.S. colt ventilator: left, arrangement of air flow; and, right, view showing neat appearance*

March 2, 1934

**New Larne - Stranraer Steamship "Princess Maud"**

(See article on page 357)



Above—L.M.S. Railway ss.  
"Princess Maud," placed in  
service between Larne and  
Stranraer this week

Right—Observation lounge

Below—First-class dining  
saloon



## RAILWAY NEWS SECTION

### PERSONAL

The London Midland & Scottish Railway announces the appointment of Mr. R. D. Roberts, District Goods and Passenger Manager, Swansea, to the position of Traffic and Dock Superintendent at Garston in succession to Mr. Topham, who is retiring.

Mr. Roberts entered the service of the former L.N.W.R. in 1899, as an apprentice clerk in the stationmaster's office at Holyhead, completing his training on the Dundalk Newry &

brothers in the L.M.S. Railway service, Mr. O. Glynne Roberts, O.B.E., Secretary of the Company, and Captain Ivor Roberts, M.B.E., Marine Superintendent, Holyhead.

Mr. H. Hills, M.B.E., Assoc. M.Inst.C.E., who, as announced in THE RAILWAY GAZETTE of February 23, has been appointed District Engineer at Newcastle, L.N.E.R., North Eastern Area, entered the service of the North Eastern Railway in the Engineer's Office at York in 1897, under the late

**SOUTHERN RAILWAY APPOINTMENTS**  
Mr. E. F. E. Livesey, O.B.E., who, as announced in THE RAILWAY GAZETTE of July 7, 1933, was then appointed Assistant to the Traffic Manager for the Development of Traffic, has now been transferred as Assistant to the Traffic Manager for Special Continental Work as from January 1, and is succeeded in his former appointment by Mr. S. Derry.

Mr. Livesey's portrait and a brief biography were published in our issue of July 21 last.



**Mr. R. D. Roberts,**

Appointed Traffic and Dock Superintendent,  
Garston, L.M.S.R.



**Mr. H. Hills, M.B.E.,**

Appointed District Engineer, Newcastle, North  
Eastern Area, L.N.E.R.



**Mr. S. Derry,**

Appointed Assistant to the Traffic Manager, Southern  
Railway, for Development of Traffic

Greenore Railway. After filling various positions in the Liverpool and Leeds districts, he was appointed Goods Agent at Stafford in 1913, and subsequently Goods Agent at Shrewsbury in 1915. In March, 1916, he was loaned by the railway for special duties at the Ministry of Munitions, and on return to the railway service in September, 1916, he was appointed Outdoor Assistant to the Outdoor Goods Manager at Euston. Following upon the amalgamation, Mr. Roberts was transferred to the office of the General Superintendent, Western Division, L.M.S.R., Manchester. In March, 1924, he was appointed Chief Clerk to the Goods Operating Manager at Euston, and in September, 1925, he became Assistant Irish Traffic Manager and subsequently Irish Traffic Manager, Dublin. It was in 1929 that he was transferred thence as District Traffic Superintendent—subsequently known as District Goods and Passenger Manager—at Swansea. Mr. Roberts is the youngest son of the late Mr. Owen Roberts, J.P., and Mrs. Roberts, Holyhead, and has two

Mr. H. C. Copperthwaite, and on the reorganisation of the department in 1901, joined the staff of the District Engineer at York. He served with the 114th Company Royal Engineers from March, 1915, to March, 1919, becoming Second in Command of that Company in 1917. On demobilisation he joined the Bridge Section of the Chief Engineer's Office at York, and in the following year was appointed Assistant in charge of the Permanent Way Section, in which position he was closely associated with the standardisation of permanent way material. In 1928 Mr. Hills was appointed Assistant to the Engineer (Permanent Way and Materials), under Mr. John Miller, B.E., LL.D., Engineer of the North Eastern Area of the L.N.E.R., the position from which he is now transferred to Newcastle.

We regret to record the death on February 18 of Mr. S. F. Mayers, Chairman of the Chinese Central Railways Limited.

Mr. S. Derry was born in 1877 and joined the L.S.W.R. in 1893, as a junior clerk. He was transferred to the office of the Superintendent of the Line in 1900, where he remained until 1923, then being appointed Assistant Chief of the Excursion and Public Enquiries Section in the Indoor Commercial Manager's Office. In 1930 he became Leading Clerk in the Development Section of the Traffic Manager's Office and in March, 1933, was given the position of Chief of the Fares, Public Enquiries and Excursions Section in the Commercial Assistant's Office. As from January 1, 1934, he has taken up his new duties as Assistant to the Traffic Manager for Development of Traffic.

Mr. F. E. Harrison, O.B.E., M.Inst.C.E., who, as announced in THE RAILWAY GAZETTE of February 23, has been appointed Assistant Engineer, North Eastern Area, L.N.E.R., is the eldest surviving son of the late Mr. C. A. Harrison, for many years Engineer of the Northern Division of the

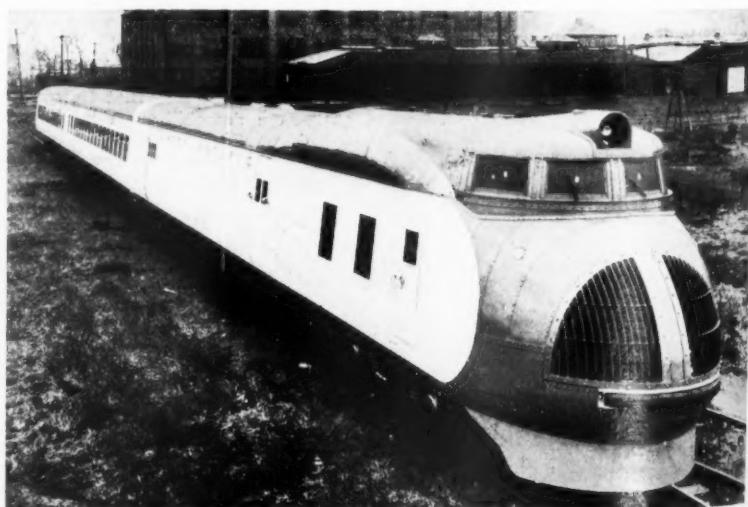
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*A group on the inaugural trip of the L.M.S.R. steamer "Princess Maud," which entered the Larne-Stranraer service on Tuesday. From left to right are seen Mr. J. M. Denny, of William Denny & Brothers Ltd., the builders of the new vessel, Mr. E. J. H. Lemon, Vice-President, L.M.S.R., and Mr. T. Somerset, M.P., Member, Northern Counties Committee, L.M.S.R. (see also article opposite and illustrations on page 354)*



*Probably the oldest surviving railway to retain its original form is that section of the Plymouth and Dartmoor Railway (now Southern Railway) which is still used for the conveyance of china clay from Lee Moor to Sutton Harbour. The history of this line formed the subject of a highly interesting lecture given on Friday last to the Railway Club by Mr. Kenneth Brown, while it is also dealt with in the March issue of our contemporary "The Railway Magazine." We reproduce alongside a photograph by Mr. R. W. Kidder of the Railway Club showing a horse-drawn train on this ancient line crossing the main line of the G.W.R. at Laira, near Plymouth*

*As a result of the satisfactory tests of a new type of two-stroke diesel engine, the Union Pacific Railroad has ordered three further streamline trains from the Pullman Car & Manufacturing Corporation. The first is a six-car train consisting of the power-car, a mail and baggage car, three Pullman sleepers, and a passenger car. The engine is of the 12-cylinder V-type, and develops 900 b.h.p. The two remaining trains are to be nine-car units with a total power capacity of 1,200 b.h.p. With these trains the Union Pacific expects to be able to reduce by 24 hours the present schedule of 2½ days from Chicago to the Pacific coast. The new units will be generally similar in appearance to the 600 b.h.p. distillate-engined train described in "The Railway Gazette" of June 16 last, and illustrated alongside*



North Eastern Railway and later Consulting Engineer to that company. Born in 1882, Mr. F. E. Harrison was educated at Aysgarth School, Yorkshire, and Winchester College, becoming a pupil with the N.E.R. at Newcastle in 1901. Before joining the N.E.R. he was employed with Sir John Jackson Limited, contractors, on the extension of the naval dockyard, Devonport. He was appointed District Engineer, Northumberland District, in 1910, and of the Newcastle District in 1913. In 1930 the Northumberland District was merged with the Newcastle District. During the war he served in France on the staff of the Director General of Transportation with the rank of Major R.E.

Sir Guy and the Hon. Lady Granet returned to England from their South African visit on February 26.

Mr. W. H. Brown, Traffic Manager of the Southern Railway of Peru, has left his headquarters in Mollendo for a holiday in the United States.

Mr. Ronald Leslie, General Manager of the Central Argentine Railway, is visiting England on leave for four or five months.

We regret to note the death at the age of 87, of Mr. John J. Leaning, who retired from the position of Divisional Superintendent, Cardiff, G.W.R., in 1912.

Mr. E. A. Prosser, C.B.E., J.P., sometime General Manager of the Rhymney and Taff Vale Railways, and of the Cardiff Railway and Docks, left estate valued at £46,873 (£42,033 net).

From the *London Gazette*:—Engineer and Railway Staff Corps.—E. J. Missenden to be Major (February 3). Major Missenden has been Docks and Marine Manager, Southern Railway, since September 1, 1933.

The Secretary to the Ministry of Transport has announced that, after consultation with the Lord Chancellor, the Minister has appointed Mr. T. Rowland Harker, K.C.—at present Chairman of Commissioners, South Eastern Traffic Area—to be Chairman of the Appeal Tribunal established under the provisions of Section 15 of the Road and Rail Traffic Act, 1933, to determine appeals from the decisions of licensing authorities on applications for licences for the carriage of goods by road. After consultation with the President of the Board of Trade and the Secretary of State for Scotland, the Minister has also appointed Mr. E. S. Shrapnell-Smith, C.B.E.—Government representative at road congresses—and Mr. F. C. Fairholme, A.M.Inst.C.E.—Vice President of the F.B.I.—to be the other two members of the Tribunal. These appointments will take effect as from March 15.

## A New Larne - Stranraer Steamship

**The inaugural trip of the "Princess Maud" took place on Tuesday**

Despite the fact that but three years have elapsed since the L.M.S.R. introduced the steamship *Princess Margaret* on the Larne-Stranraer route, the company's progressive policy in regard to its Irish Channel services has been further exemplified by the commissioning of another new vessel, the *Princess Maud*, which made her inaugural trip from Stranraer on Tuesday last, February 27, with a distinguished party on board.

As providing the shortest sea passage between Great Britain and Ireland—only 70 minutes in open water—this service has an increasing popularity with passengers to and from the south of England, apart from its great utility as the direct route between Scotland and Northern Ireland. The new vessel aims at catering for this popularity by providing an advance even over the *Princess Margaret*, and passengers who wish to enjoy the beauties of the run down Loch Ryan and along the Wigton coast will be particularly grateful for the installation of a patent grit arrester at the base of the funnel to prevent the emission of grit and soot.

The *Princess Maud* has been built by William Denny & Bros. Ltd., Dumbarton (as was also the *Princess Margaret*, which we described and illustrated in our issue of April 10, 1931), to Lloyd's Register highest class and to the requirements of the Board of Trade and the International Convention for the Safety of Life at Sea. With a gross tonnage of 2,896, her principal dimensions are:—330 ft. in length, overall; 49 ft. moulded breadth; and 17 ft. moulded depth. She was designed for a service speed of 20 knots and has a capacity for approximately 1,250 passengers, in addition to general cargo, mails, motor cars, and cattle.

Sleeping accommodation is available for 161 first class and 62 third class passengers, the former in special staterooms and in single and two-berth rooms. In the first-class cabins there are no superimposed berths and all berths are arranged in fore and aft direction. The third-class sleeping accommodation consists chiefly of two-berth and four-berth cabins. All cabins throughout the ship are provided with hot and cold fresh water.

The hull is sub-divided by nine watertight bulkheads, and the vessel is equipped with the latest fire-fighting and life-saving appliances. These include the Grinnell automatic sprinkler and fire alarm system throughout the passenger and crew accommodation, a fire detection system in the cargo holds, and six patent type lifeboats fitted with hand propelling gear. The lifeboats on the midships boat deck are housed under Gravity type overframe davits. An electrical sounding machine has been installed to facilitate safe navigation

in foggy weather. The ship is equipped with two rudders, the main rudder being of the balanced type and the bow rudder of the tank type, and both are operated by electro-hydraulic steering gear. All the deck machinery is electrically driven.

The forward portion of the boat deck is enclosed, and forms a spacious observation lounge. Large plate glass windows fitted on the front and sides give an unobstructed view, and the apartment is furnished with wicker chairs and settees. The first class smokeroom and bar, situated at the after end of the same deck, is decorated in a light oak scheme, and is comfortably furnished, with settees and easy chairs, and small tables are provided.

In the dining saloon at the after end of the bridge deck, a decorative scheme of painting has been adopted with very pleasing results. This room is well lighted by large windows, and seating accommodation for 76 persons is provided at small tables of varying designs. At the forward end of this deck is situated the first class lounge, in which the scheme of decoration embodies panelling in Indian silver grey wood. The lounge is furnished in an extremely comfortable manner, with settees and easy chairs, and small tables and writing tables are also provided. Another feature of the *Princess Maud* is the ladies' lounge which adjoins the main lounge. The entrance hall to the saloon accommodation extends across the bridge deck and gives easy access to the different decks, and the bureau and night steward's office adjoin.

For the use of third class passengers, a well-furnished smokeroom, with bar, is situated on the poop deck. A ladies' lounge is provided nearby, and a large part of the after main deck space has been taken for a general saloon. This is furnished with upholstered settees, instead of the customary sparsely seated seats.

The sanitary arrangements throughout the vessel are on up-to-date lines, and ample lavatory accommodation, together with a number of plunge baths, is provided on the various decks. The latest system of mechanical ventilation is installed, capable of supplying hot or cold air to all parts of the accommodation, and the supply of air can be regulated independently for each cabin.

The cargo capacity below the main deck amounts to approximately 40,000 cu. ft., and the vessel is equipped with cattle stalls to accommodate 240 beasts, and permanent horse stalls are provided for 12 horses, whilst a number of cattle stalls can be adapted for the conveyance of horses if required.

The propelling machinery consists of two sets of Parsons single-reduction geared turbines driving twin screws. Saturated steam is supplied at a pressure of 225 lb. per sq. in. from four

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Babcock & Wilcox water tube boilers, arranged to burn coal under the enclosed stokehold principle. An interesting feature of the boiler installation is the adoption of mechanical retort type stokers for firing the boilers.

#### Inaugural Sailing

In celebration of the inaugural sailing of the *Princess Maud* on Tuesday last, February 27, a luncheon was held at the Laharna Hotel, Larne, which was presided over by Sir Thomas Royden, Bart., a Director of the London Midland & Scottish Railway. Three parties of guests had been invited from London, Northern Ireland, and Scotland. The London Midland & Scottish Railway was represented by:

Sir Thomas Royden and Sir Arthur Rose, Directors; Sir Harold Hartley and Mr. E. J. Lemon, Vice-Presidents; Major J. A. W. O. Forrens, Chairman, Northern Counties Committee; Mr. Thomas Somerset, M.P., Member, Northern Counties Committee; Major Malcolm Speir, Manager, Northern Counties Committee; Mr. Ashton Davies, Chief Commercial Manager; Mr. J. Ballantyne, Chief Officer for Scotland; Mr. W. Yeaman, Commercial Manager, Scotland; Mr. W. Crozier, Operating Manager, Scotland; Mr. H. Moffat, Secretary, Scottish Local Committee; Captain J. W. Harris, Marine Superintendent; Mr. J. A. Milligan, District Passenger Manager; Mr. G. H. Loftus Allen, Advertising and Publicity Officer; and other officers.

Sir Dawson Bates, Minister of Home Affairs, Government of Northern Ireland, in proposing the toast of "The London Midland & Scottish Railway," expressed appreciation on behalf of the Government of the adequate facilities provided by the Northern Counties Section of the London Midland & Scottish Railway for Northern Ireland. A recent example had been the Greenisland loops and now they had a magnificent new steamer the *Princess Maud*. In 1926 a Bill regulating bus traffic had been passed in Northern Ireland and the principle of that Act had now been followed by the British Government.

Sir Thomas Royden in replying, referred to the liberal measure of financial assistance which the Government of Northern Ireland had afforded the L.M.S. Company in building the Greenisland loops and viaduct. Referring to road transport he contended that in a well organised State it should be ancillary to rail transport. Continuing, he said that the Larne and Stranraer service, on which the new steamer was to operate, had been in existence for a century. The railway companies instituted the present service in 1872.

Mr. Thomas Somerset, in proposing the health of the Chairman, referred to the number of prominent L.M.S. officers who had come from Northern Ireland, mentioning particularly Mr. J. Quirey, Mr. W. V. Wood, Mr. W. K. Wallace, and Captain Harris.

**NEW G.W.R. HALT AT GREEN BANK.**—The new G.W.R. halt now under construction at Green Bank, to which reference was made on p. 311 of last week's issue is to be brought into use on Monday, March 12.

#### Institution of Locomotive Engineers' Annual Dinner

Some 240 members and guests attended the annual dinner of the Institution of Locomotive Engineers, held in London on Friday last, under the chairmanship of the President, Major Charles E. Williams, C.B.E., Chief Inspecting Engineer, Crown Agents for the Colonies. Those present included:

Capt. H. P. M. Beames, Deputy Chief Mechanical Engineer, L.M.S.R.; Mr. G. V. O. Bulkeley, C.B.E., General Manager, Nigerian Government Railways; The Rt. Hon. Lord Darlington, P.C.; Mr. C. Day, President, Institution of Mechanical Engineers; Col. J. G. Fleming, C.B.E., D.S.O., Fourth Crown Agent; Mr. H. N. Gresley, C.B.E., Chief Mechanical Engineer, L.N.E.R.; Mr. P. V. Hunter, C.B.E., President, Institution of Electrical Engineers; Mr. C. B. Hutton; M. Lancrenon, Ingénieur-en-Chef, Matériel et Traction, Cie. du Chemin de fer du Nord; Mr. Norman D. Macdonald; Mr. R. E. L. Mansell, C.B.E., Chief Mechanical Engineer, Southern Railway; Lt.-Col. A. H. L. Mount, C.B., C.B.E., Chief Inspecting Officer of Railways, Ministry of Transport; Mr. I. St. L. Pendred, Editor, *The Engineer*; Mr. N. P. P. Sandberg, C.B.E.; Sir Seymour B. Tritton, K.B.E.; Major H. E. Wimperis, C.B.E., Director of Aeronautical Research, Air Ministry; and Major H. A. Harrison, Secretary of the Institution of Locomotive Engineers.

The Rt. Hon. Lord Darlington, P.C., followed the loyal toast proposed by the Chairman with that of "The Guests." His great grandfather, he said, had been responsible for promoting the first railway bill, and he himself had represented Darlington, the home of the first public railway, in Parliament for many years. They had many distinguished people there that evening, and it was a record dinner, due, he thought, largely to the popularity of their chairman.

Mr. Loughnan St. L. Pendred, on behalf of the guests, responded to the toast in one of his characteristically witty speeches and expressed pleasure at the existence of an institution whose members still believed in the steam locomotive. They might look forward, he thought, to the locomotive of the future as having a three-pressure safety-first boiler and a turbo-electric diesel engine with a fluid flywheel, superheterodyne control and a ball bearing blast pipe.

Major H. E. Wimperis, M.A., C.B.E., proposing the toast of "The Institution of Locomotive Engineers," explained that he had served in the locomotive shops of the former L.B.S.C.R. in the early years of the present century. He wondered whether conditions were the same on the railways to-day. In aeronautical engineering a great deal of research was necessary, and in this country over half the work was carried out by and at the expense of the Government. He did not know whether the Government assisted locomotive engineers in the same way. On the production side in aeronautical engineering, the Government paid for 80 per cent. of the total output. There was much talk of disarmament. Owing to high development of transport facilities people could move long distances in a short time. He suggested one of

the first steps in disarmament should be to limit the steam locomotive to a four-wheeled vehicle with a boiler pressure of 50 lb. per sq. in.

Major Williams, responding to the toast of the Institution, said that perhaps Major Wimperis could tell Mr. Gresley how he obtained grants from the Government, as Mr. Gresley had been informed that funds were not forthcoming for a locomotive testing plant. Mr. J. H. Thomas, Secretary of State for the Dominions, had promised to attend that evening, but at the last moment other duties had prevented his attending. During the past year the institution had moved to new and larger headquarters; the membership now stood at 1,500. He referred appreciatively to the assistance he had received from the Vice-Presidents and the Council, mentioning particularly Mr. J. Clayton, and to the work of the Secretary, Major H. A. Harrison.

Sir Seymour B. Tritton, K.B.E., expressed the thanks of the gathering to the dinner committee, Messrs. J. Clayton, L. J. Le Clair, and H. E. Geer, and Mr. Clayton responded. A graceful compliment was paid to the chairman of the evening by the selection for the principal items in the menu of names of seven of the Crown Colonies. The entertainment following the speeches included a novelty in the shape of a four-round boxing exhibition between competitors aged 13 and 12 years.

#### L.M.S. Smoking Concert

The Queen's Hall was crowded last Monday night for the annual smoking concert of the London District Goods Manager, L.M.S.R., when an excellent programme was presented and enthusiastically appreciated. As last year, no speeches were made, but a facsimile letter of welcome from Mr. A. L. Castlemann, the London District Goods Manager, was printed in the programme. In it the brighter prospects of to-day compared to conditions a year ago were referred to, and recognition was given to the part played by traders and the public in entrusting their traffic to the London Midland & Scottish Railway. That company, it was pointed out, was now, as a result of the passing of the Road and Rail Traffic Act, in a position to co-operate still further with those wishing to travel, or having goods to consign. The letter concluded: "We of the London District are always at your service. Let us know what you want in the way of transport and we will provide it." Mr. Castlemann, who presided, was supported by:

Messrs. L. C. Brittlebank, W. O. Davis, E. Overend and M. Hewitt. Among others present were: Messrs. Ashton Davies, E. Wharton, E. Taylor, F. A. Cortez Leigh, J. Shearman, T. W. Royle, T. E. Argile, A. W. Barratt, W. A. Brown, A. S. Mills, P. Syder, A. S. Gregory, J. Wardle, P. W. Jacobs, S. Tipton, F. Edmeads and W. W. Lacon.

## QUESTIONS IN PARLIAMENT

### Chinese Eastern Railway

Mr. Neil Maclean, on February 21, asked the Secretary of State for Foreign Affairs whether he had received any reports from His Majesty's representatives in Manchuria regarding the charges made by the Commissar for Foreign Affairs of the U.S.S.R. that Japan was taking steps, through her agents in Manchuria, to take possession of the Chinese Eastern Railway; and whether he could make any statement as to the present position on and in the neighbourhood of the railway.

Sir John Simon.—No. Reports on this subject have, however, been received by H.M. Embassies at Moscow and Tokio. These reports do not add anything to the reports regarding the matter appearing in the press. Regarding the second part of the question, it is understood that limited services are in operation along the system of the Chinese Eastern Railway, but these services are subject to interference by banditry.

### Tanganyika Railways

Mr. Parkinson asked the Secretary of State for the Colonies whether his attention had been drawn to the desire expressed by the Permanent Mandates Commission that His Majesty's Government should give a detailed account in their annual report on Tanganyika of the measures they were taking to put Mr. Roger Gibbs's report on railway finances into effect; and whether up-to-date steps had been taken in this direction.

Mr. M. MacDonald (Under Secretary for the Dominions) who replied, said:—In compliance with the request made by the Permanent Mandates Commission in its report to the League Council on the 23rd session, particulars will be given in the Annual Reports on Tanganyika as to any steps which may be taken with regard to that territory on the basis of the suggestions in Mr. Gibbs's report. That report is still under consideration.

### A West Ham Bridge Question

Mr. Groves asked the Minister of Transport whether he was aware that the railway company was contemplating operating a notice that no vehicle exceeding five tons should cross Connaught road bridge, South-West Ham; and whether, in view of the consequent congestion of traffic to and from the docks and the possibility of a breakdown in the supply of London's food, and seeing that if the proposed restrictions were operated it would not be possible for the West Ham fire brigade to answer a call to the other side of the Connaught bridge, he would authorise a scheme of work strengthening this bridge, so that it would carry all presently workable vehicles and thereby ensure London's safety and food.

Mr. Stanley.—My information does not agree with that of the hon. member. I am informed that the

## PARLIAMENT

bridge in question belongs not to the railway company but to the Port of London Authority and that they propose to prohibit the use of it by vehicles with an axle load exceeding 5½ tons, which represents a total weight considerably above the five tons mentioned by the hon. member. I am further informed that the restriction proposed would not prevent the West Ham Fire Brigade vehicles from crossing the bridge. I am, however, com-

municating with the Port Authority in the matter and will acquaint the hon. member with the result.

### Air Services and the Railway Companies

Mr. McAndrew on February 28 asked the Under Secretary for Air if he could state to what extent it was proposed to subsidise the new internal air services which were to be formed on behalf of the railway companies.

Sir P. Sassoon.—There is no proposal to subsidise the new internal air services to be formed on behalf of the railway companies.

## L.N.E.R. Smoking Concert

On February 23, Mr. William Whitelaw, Chairman of the London & North Eastern Railway Company, presided at the L.N.E.R. (King's Cross) Literary Society's 42nd annual smoking concert, at the Queen's Hall. The standard of excellence of the programme was first rate and, besides Callender's Band, a number of well-known artists contributed to a thoroughly enjoyable evening's entertainment.

Among those present were:—

*L.N.E.R.*—Messrs. A. J. Brickwell; C. J. Brown; R. Brown; T. F. Day; P. J. Dowsett; R. Gardiner; O. C. Gatenby; W. M. Gracie; S. A. V. Gregory; E. L. Hawkins; J. Lees; G. Marshall; James McLarne; J. Miller; S. L. Murgatroyd; R. A. Newman; C. H. Newton; H. S. Owen; W. J. Pepper; A. P. Ross; C. J. Selway; A. E. Sewell; C. F. Slade; J. Proctor Smith; P. Syder and F. Warrier.

*L.M.S.R.*—Messrs. G. Morton; E. Taylor; J. Tonge; W. K. Wallace and W. V. R. Wood. *S.R.*—Messrs. F. Bushrod; R. G. Davidson; A. E. Moore; A. W. Szlumper (retired) and H. E. O. Wheeler.

*L.P.T.B.*—Messrs. A. R. Cooper; and J. P. Thomas.

*Norwegian State Railways*.—Mr. K. Olsen.

There was also a large number of visitors from the shipping, tourist, and road transport offices.

In the course of the evening the chairman, prior to presenting a number of cups and shields, made a brief and amusing speech. He opened it by saying that he was glad this old-established gathering was taking place under happier auspices than for some years past. "We in the railway world have come," he said, "out of the dark into the dawn and hope ere long to reach the full sun of mid-day. We are glad to see so many of our friends and traders at this concert, and we welcome them heartily and are glad to rub shoulders with them and forget their past differences, if any. Meanwhile we draw their attention to our programme of attractions for the current year, including four train cruises during the month of June, in the course of which the whole of one half of England and Scotland can be seen in luxury and for a moderate sum. Or if that is too expensive, why not take a camping coach?" he asked, "or a week-end cruise on the ss. Vienna? Travelling in the train the other day I overheard

the following: 'Come into the next compartment, Maud, and hear the words I've said into the dictaphone.' \*\* In conclusion, Mr. Whitelaw said he hoped the evening would prove one of the best they had ever had.

He then presented cups and shields as follow:—

*Billiards League Championship Competition*.—Division 1, "Hill Dawe" Championship Cup, won by Mr. E. W. Stewart; Division 2, "Great Northern Officers" Cup, won by Mr. E. H. Clouder; Division 3, "Warriner" Cup, won by Mr. T. H. Lawson.

*Snooper Championship Competition*.—Division 1, "Newton" Cup, won by Mr. R. C. Methven; Division 2, won by Mr. R. S. Donnell. *Chess Section Championship Cup*.

This competition was not completed.

*Inter-Departmental Billiards Competition*.—The winners were the Accountants' team, who hold for the year the shield provided by the society.

*Inter-Departmental Snooker Competition*.—The winners were the Engineers' team, who hold for the year the shield given by Mr. J. E. Ryan, Hotels Superintendent.

Towards the close of the programme, Mr. C. J. Selway proposed a vote of thanks to Mr. Whitelaw for presiding, and for presenting the prizes. The vote was greeted with hearty applause.

\* This refers to the recently introduced dictaphone service on the L.N.E.R. by which letters can be dictated at any time without waiting for a stenographer and are subsequently typed before the end of the journey. This was described in THE RAILWAY GAZETTE of February 16 last.—ED. R.G.

**BRIDGE RECONSTRUCTION ON THE L.M.S.R.**—Work has begun in the Derwent Valley, between Derby and Ambergate, on the reconstruction of three big viaducts carrying the main line of the L.M.S.R. from Derby to Manchester and the North. These viaducts are being rebuilt to enable them to carry the heaviest locomotives, and their reconstruction is due to be completed early in 1935. In the new structures there will be 1,700 tons of steelwork, and the foundations will consist of steel cylinders sunk under air pressure into the river bed. The three viaducts are Belper Pool (470 ft. long, ten spans); Broadholme (348 ft. long, seven spans); and Swainsley (220 ft. long, six spans). The work will involve the diversion of certain trains at weekends between Derby and Ambergate.

## LONDON MIDLAND & SCOTTISH RAILWAY COMPANY

*Improving traffics—Continuation of real economies—Summer tickets—Passenger train accelerations—Speeding up of freight traffic—Experiments with light units—Greater locomotive efficiency—Value of research—Success of Royal Scot tour*

The eleventh annual general meeting of the London Midland & Scottish Railway Company was held at Friends House, Euston Road, London, N.W.1, on Friday, February 23, Sir Josiah Charles Stamp, G.B.E. (Chairman of the company), presiding.

The Secretary (Mr. O. Glynne Roberts) read the notice convening the meeting.

The Chairman: Ladies and gentlemen, we have, as in each of the past five years, issued a summary statement of the main items in the accounts, together with a number of additional statistical details, and our experience has shown that not only is this preferred by the stockholders generally, but it has also resulted in appreciable savings compared with the previous practice of circulating to all the full accounts, a copy of which any proprietor will receive on request. This arrangement has now been made permanent, and it has the further advantage of giving in black and white all the principal figures, which can thus be more quickly grasped than if I gave them in my speech.

### Financial Results

I shall, therefore, confine my remarks on the year's results to a few of the matters shown therein. We show that for the second year in succession the capital expenditure has been reduced, the chief reasons being the credits resulting from the withdrawals of rolling stock and sales of land not now required to be held for present or future railway purposes. Turning to the year's net revenue account, the receipts from all sources fell by £325,000, and the reasons for this are well known, but while in the first six months of the year there was a reduction in receipts of £1,700,000, the second six months showed an actual improvement of £1,375,000, and I am glad to say that this tendency has continued, as our traffic receipts to date have shown an improvement of £482,000 over the same seven weeks of last year. You will be interested to compare the turn of the tide in our receipts in the middle of the year with the course of national production on the graph. That production, of course, includes much activity not capable of being reflected in railway receipts, but the general trend is comparable. Meanwhile you will see how the tonnage capacity on the road available for dealing with this volume of production steadily rises.

The loss in receipts reflects two items to which I should direct your attention:—General interest shows a reduction of £135,000, due to the lower bank rate ruling during the year, with its reaction on the interest earnings of our cash resources, and to the reduction in the rate of interest payable on Government securities following the conversion of the war loan. The other item is an increase from £35,000 to £82,000 in the loss on the working of the company's railway in Northern Ireland, which is treated as a separate concern. The great difficulties of that undertaking were aggravated last year by the strike which lasted ten weeks, the only results being to deprive the strikers of their wages during that period, to increase the difficulties of working the undertaking and to reduce permanently the number of men employed.

### Savings in Expenditure

Against this loss in earnings of £325,000, I am glad to say there was a saving in working expenses of £1,133,000, so that there was an increase in the net revenue of £808,000, a remarkable result in the worst year from the gross revenue standpoint which the company has experienced, worse even than that of 1926 when we had the general strike and a very prolonged stoppage in the coal industry.

It will not be possible with the higher traffics, such as

we have recently been carrying, to keep expenditure to the 1933 level, because of the additional cost of running extra trains and of loading and unloading increased freight traffic, the necessity for which I will refer to later. While I do not say that we have reached the end of economies of a permanent nature there is a limit to the savings which can be achieved in this direction. The fact of reducing expenditure from £70,000,000 by £15,000,000 to £55,000,000 in six years necessarily contracts the field for economy, particularly as circumstances outside our control govern the rates of wages and prices of materials which constitute 90 per cent. of our expenditure. There was no alteration during the year in rates of wages, but a rising tendency has been shown in the price of materials purchased and that also will be further felt in 1934; one commodity alone which we purchase will, in fact, require an additional expenditure of £35,000 in 1934. You may rest assured, however, that the large economies arising out of re-organisation and re-equipment, which I have explained in detail during the last few years, will be of a permanent nature. As an indication of the steady process of retrenchment and progressive economy, you will see from the report that the number of staff employed during 1933 decreased a further 5,887, bringing the fall over the past 10 years to 20 per cent. I mentioned two years ago the budget system we had introduced to control expenditure, and you may be interested to know that for 1933 the actual expenditure finally worked out at 99.6 per cent. of the budget fixed early in the year.

### Comparison with Foreign Railways

You may be interested once again in comparing the relation between gross and net receipts in our company with those for the German and American railways. In the latter case there is generally a more drastic reduction of the labour force and maintenance expenditure when gross receipts are declining than we find it possible or expedient to adopt here, and a correspondingly more rapid change on the upturn. In this connection I ought to state that in a report to the United States authorities the co-ordinator explains that economies have been to a considerable extent at the expense of maintenance and what has been deferred must be made good. I am glad to state that, hard pressed as we may have been during the final stages of the depression in our total traffics, we have not found it necessary to depart from our regular principle in which provision is made for the full renewal quota applicable to each year.

This brings me to the fact that in 1933 we have charged to working expenditure a sum of £140,000 in respect of deferred repairs of rolling stock. This was in respect of certain work to rolling stock which we thought might not be required, and we set aside some units in an unrepainted condition until it could be seen whether they would again be required, or whether they should be broken up and written out of capital. With the turn in trade they are now required for a further period, and the actual repairs are being performed in 1934, but are a liability for 1933.

### Balance Sheet

You will see from the balance sheet that the company's liquid assets position is satisfactory, and we have cash and Government securities totalling £26,000,000 compared with £24,000,000 a year ago. The increase of about £500,000 in the investments in transport undertakings shown in the balance sheet is mainly due to the inclusion therein of our share of the payments in connection with the acquisition of shares in Carter Paterson and Pickfords, which I shall mention later. Pending completion of certain details the payments are held in the balance sheet, but there will ult-

mately be a charge to capital account for this investment. The only other balance sheet item to which I need direct attention is an increase in the contingency fund from £491,000 to £663,000, mainly due to further realised profits on the sale of investments, similar to those mentioned a year ago.

### Administration

Vacancies on the Board were caused by the resignations of the Rt. Hon. Walter Runciman and the late Mr. Wiggan, and we have co-opted Sir Francis Joseph and Sir Arthur Rose to fill them. Sir Francis Joseph has a wide knowledge of the Midlands and makes good a gap in the representation of that area left by the death of Major Frank Wedgwood. Sir Arthur Rose has long been associated with us as a member of our Scottish Committee and serves as a representative in Northern Ireland and on the board of MacBraynes.

Mr. Newlands, who before the amalgamation was Chief Engineer of the Highland Railway, has retired from the position of Chief Civil Engineer, and in appointing a successor we were fortunate in having on our staff a man of such wide capabilities as Mr. W. K. Wallace, whose former position of Chief Stores Superintendent is being ably filled by Mr. S. J. Symes.

### Passenger Fares

Last February I told you that the policy of a general reduction of fares was a matter of the greatest importance, and no doubt you gathered that some early step in this direction was a distinct possibility. Shortly afterwards there was introduced, by the issue of summer tickets, the widest extension of cheap rail travel since the war.

Since May 1 passengers have consequently been able to travel by any train on any day of the week and return any time within a calendar month at a penny a mile (third class) between any two stations on this company's system, subject to a minimum fare of 2s. 6d. per ticket. The critical question was whether a reduction from 1½d. to 1d. per mile would attract the additional passengers necessary completely to make good the loss of revenue due to the lower fares on existing traffic, apart altogether from extra working expenses. Now if this had been tried in 1929 or 1930 the number of extra passengers wanted to prevent a dead loss would have been three times as great, and we were confident that such a huge increase was not possible at that time.

The experiment was of distinct value to the millions of holiday-makers who travel to British towns and resorts, but it has, I feel, proved of equal benefit to business men all over the country and for other travel purposes. The reduced fares brought many new travellers and extended the range of travel for the old ones, and there was an almost complete absence of complaints with regard to conditions and restrictions hitherto applied to period excursion tickets, no doubt due to the flexibility now permitted. This flexibility has, however, been costly, because the additional traffic required more additional expenditure than was anticipated, the load not being evenly spread, and the pressure on the best trains necessitated running them often in triplicate. The exceptionally fine weather experienced last year and the decrease in unemployment were factors in our favour. Taking all the circumstances into consideration, however, we and the other main line companies have decided to continue the penny-a-mile Summer ticket facility during the whole of 1934, thus enabling us to test this experiment for all seasons and under all conditions. An outstanding feature of passenger business has been the increased appeal of the holiday contract ticket arrangements, under which passengers are allowed to make any number of journeys within a specified area for a given period. The receipts amounted to £115,000 and showed a marked expansion over the previous year. One indefatigable traveller claimed a record of 2,501½ miles in a week for ten shillings.

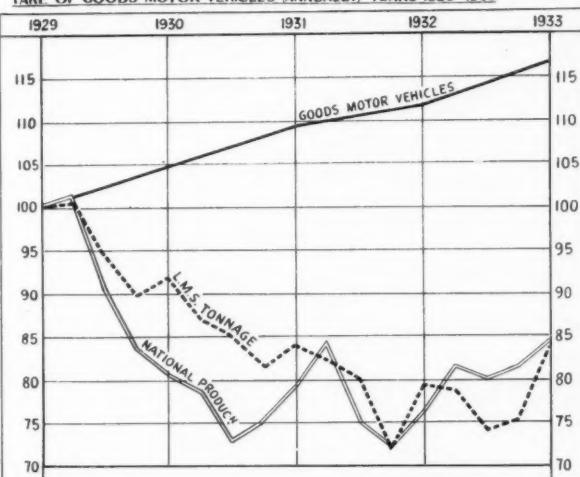
### Parcels Traffic

Despite depression in trade, the parcels business (representing commodities under 2 cwt.) by passenger train emerges as a positive achievement. For 1933, compared with 1932, the number forwarded increased by almost six millions, or

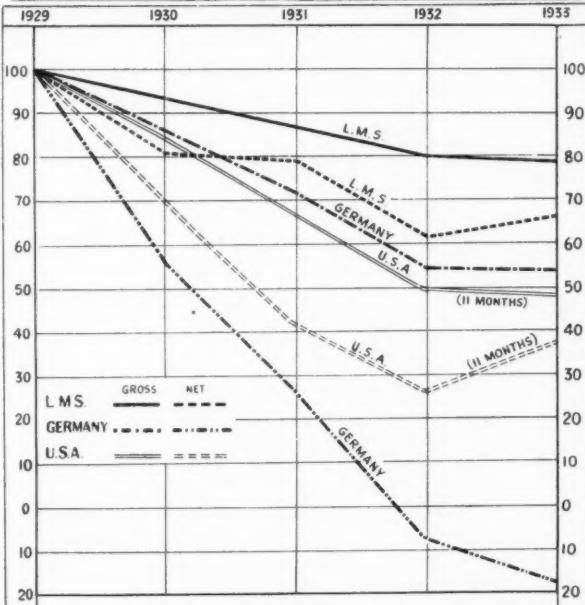
16 per cent., and the receipts therefrom by £143,000, or 5 per cent.

You will be able to form some idea of the magnitude of the business when I tell you that we received for forwarding no less than 42,611,000 such parcels, representing £2,883,000 in receipts. The large increase is partly due to the extension of the gift "coupon" schemes promoted by various news-

L.M.S. TONNAGES (QUARTERLY) COMPARED WITH  
NATIONAL PRODUCTION (QUARTERLY) AND TOTAL  
TARE OF GOODS MOTOR VEHICLES (ANNUALLY) YEARS 1930-1933



GROSS AND NET RAILWAY RECEIPTS  
L.M.S. COMPARED WITH RAILWAYS OF GERMANY & U.S.A. YEARS 1930-1933



paper and tobacco firms, but the traffic was obtained in face of keen competition.

### Light Rail Units

The problems of the branch and intermediate passenger traffic are being continuously tackled by experiments with light units, and in the year 1933, following a study of the use of light passenger units, both at home and abroad, their development had advanced sufficiently to justify us in thoroughly trying out under service conditions the use of

internal combustion, spark ignition, compression ignition, heavy oils, &c., for rail traction, in order to ascertain whether the commercial advantages and economies claimed for them can be substantiated, and to determine the type most suitable for our requirements.

Orders were placed last year for a number of different types and capacities and, as they are delivered, the light passenger units are being used to provide a more intensive service on branch and secondary lines. We have also ordered a number of heavy oil shunting engines of various types in order to test their utility and economy at places where there is continuous shunting duty. Some time must, of course, elapse before the tests are final and conclusive.

#### Salesmanship

Another important step was taken in connection with our commercial organisation to which I referred twelve months ago. Our force of salesmen of both passenger and goods train services has been entirely reorganised, the country areas remodelled, and the company's personal contact with the public widened and strengthened, the extent of which may be gathered from the fact that the number of calls made direct upon the public average over one million a week. The response to our press invitations to the public to let us know of their problems and requirements has been most gratifying and helpful.

#### Irish Traffic Position

Since our last meeting the political developments in the Free State have continued to hit us very badly through the double set of import duties, particularly in the resultant shrinkage in live stock and other exports into this country. The best barometer of the total effects of the tariffs is perhaps the steamship receipts from our Holyhead and Dublin, and Holyhead and Greenore services which have fallen by one-third in two years.

Our steamer workings have also been disturbed by labour troubles, principally on the Northern Ireland railways, and the sailings between Holyhead and Greenore were entirely suspended from February 1 for nearly three months, and traffic via Heysham and Belfast was seriously restricted. For a short period in July the sailings between Holyhead and Dublin were also suspended owing to the dockers ceasing work at Dublin. The future outlook is obscured by the general repressive effect of the tariff policy of the two Governments, and no clear forecast can be made of the future trend until the difficulties outstanding between them are settled. Meanwhile the position of our net revenue continues to receive close attention, and rearrangements of services have enabled expenditure to be curtailed.

#### Representation Abroad

Recent great changes in the flow of passenger and freight traffic between the United Kingdom and America and France have drastically affected us. The pooling schemes have brought within practical range the consolidation of our arrangements for representation in America. We had two offices in New York, and the necessity for an independent freight office has become much less, while we had long wished to enlarge the scope of our New York office to cover the arrangement of complete British and Continental tours, including hotel reservations for American visitors. A joint organisation (embracing the L.M.S., L.N.E. and Southern Railways) known as Associated British Railways Incorporated, covering all passenger and freight business, is consolidated in the passenger office formerly occupied by us in New York. A new service to the public, an entirely new departure for British railways, has been inaugurated, which, by the authority of the Trans-Atlantic Passenger Conference will arrange all-inclusive tours from the ports of the United States and Canada throughout Europe, and all classes of steamship and European travel will be undertaken.

Similarly in Paris; we have instituted a joint British Railways' Office known as Les Chemins de fer Britanniques, the premises formerly occupied by the L.M.S. being utilised. By these consolidations, apart from a reduction in expenditure, the British railways hope to attract and secure a

larger proportion of the available tourist traffic to this country.

#### Hotel Undertakings

In our hotels business, 1933 was a year of considerable development. The growth of business at the Welcombe Hotel, Stratford-upon-Avon, since its opening in 1931, made it necessary to add an extra wing. At Morecambe, a new Midland Hotel has been built on the site of the old hotel, and at Stoke-on-Trent the North Stafford Hotel has been remodelled and reconditioned. In spite of the continued reduction of overseas tourist traffic in this country our hotels have been patronised to an extent exceeding our expectations. In furtherance of the company's policy of rationalising hotels now under common ownership, and of extending and modernising those hotels for which there is a considerable public demand, the North Western Hotel at Lime Street, Liverpool, was closed in April and the guests taken to the Adelphi and Exchange Hotels. The result has considerably benefited the net revenues of the company. At the same time an opportunity was taken of modernising the Exchange Hotel by running hot and cold water and central heating in all the rooms, and similar work is in progress at several others.

#### Marine Department

In our shipping business we have continued our re-equipment policy and orders were placed for five new vessels which will be completed early in 1934, viz.: one cross-channel passenger and cargo steamer for the Larne and Stranraer service, two paddle steamers for use on the Clyde, and two tugs for use in Barrow Docks. The new steamer for the Larne and Stranraer service, which is the shortest connecting link between Great Britain and Northern Ireland, embodies the latest improvements in design and construction and is fitted with the most modern conveniences for passenger comfort, making decided advances in cross-channel steamer standard. Several new features have been introduced, such as the fitting of mechanical stokers, which will provide substantial economies in fuel consumption; the safeguarding of the ship and her passengers against fire by fitting automatic sprinklers and fire alarm and fire detection systems.

#### The Position in London

July 1, 1933, saw a partnership established between the four main line railway companies and the tubes, omnibuses and tramways for the co-ordination, development and consolidation of London passenger transport by rail and road brought about by the London Passenger Transport Act, 1933.

The Act set up two bodies, namely:—

(1) The London Passenger Transport Board, which has taken over the whole of the tube lines, the Metropolitan and the Metropolitan District Railways, as well as the whole of the local omnibuses and tramways. (2) A Standing Joint Committee consisting of eight members—four appointed by the London Passenger Transport Board and four by the main line railway companies—to secure that the services provided by the Board shall be properly co-ordinated with the suburban passenger services of the main line companies within a radius of approximately 30 miles from Charing Cross. The Act also provides for the pooling of the whole of the local passenger receipts in the area after deduction of allowances for operating expenses.

It will be realised that there is a great deal to be done before full advantage can be taken of the altered conditions contemplated by the Act, but the possibilities for improvement of travelling facilities will, however, be apparent, e.g., the greater opportunities for better and more comprehensive services. Some idea of the field covered by the new arrangements can be gained from the fact that on the railways of the main line companies alone there are within the area no less than 600 passenger stations, and the number of intra-London passenger journeys made on these lines for the year 1932 was 500 millions and represented 4,750 million miles of travel.

#### Passenger Train Speeds

During the year the timings of 102 express passenger trains on the Western and Midland Divisions have been accelerated,

effecting a saving of 1,004 minutes per day, and in addition 2,582 other passenger trains have been speeded up, while 151 of the more important freight trains have been accelerated, with a saving of 4,319 minutes per day, a total reduction of 204 hours daily. This follows a reduction of 312 hours in 1932. The time table for the summer of 1933 included 119 regular runs daily at a speed of 55 miles per hour or over, start to stop, covering upwards of 8,500 miles—ten of the runs, aggregating 1,200 miles, were booked at not less than 60 m.p.h., start to stop. Compared with 1923, when the amalgamation took place, the number of passenger train runs scheduled at a speed of 55 m.p.h. or over, start to stop, has more than doubled, whilst the number of fitted express freight trains, i.e., trains composed wholly or partially of vehicles fitted with the automatic brake, has more than trebled.

#### The Delivery of Goods

Speeding up our freight services has resulted in the trains reaching the principal towns earlier than formerly, thus enabling more traffic to be discharged from wagons to road vehicles between midnight and 7.0 a.m., and more to be sent out for delivery to traders on the first rounds. At the goods sheds and yards we are experimenting with various types of mechanical appliances, and some drastic schemes for redesigning the sheds and the yard layout and working are also in progress. We are extending our cartage boundaries to meet changed requirements, and there has been a further improvement in terminal delivery. A recent test showed that on an average 93 per cent. of traffic was delivered on the day of arrival at destination station (as compared with 91 per cent. in 1932). The remaining 7 per cent. included goods which did not arrive until the last delivery vehicles had left, also traffic held at the station awaiting the instructions of consignees so that delivery could be effected to meet their wishes.

Perhaps of greater interest is the time taken for throughout transit. A test made recently covering consignments of general merchandise from all sources showed that 69.4 per cent. was delivered not later than the day after despatch, against 67 per cent. in 1932, and delivery by the second day had practically reached 94 per cent. The arrangement introduced for road motor services from transhipment centres outwards to give delivery the day of arrival within a circle 30 to 40 miles across has now been applied in the inwards direction, and small lots of traffic are, as far as possible, despatched by road motor services, if other means are not available, to tranship centres from stations within a radius of approximately 20 miles in time to secure despatch on the day of acceptance. There has been a further development in our country lorry services to outlying villages and farms as far distant as ten miles from selected stations, and there are now upwards of 600 stations in England and Wales where collection and delivery services are given to surrounding villages and farms. Approximately 23 per cent. more tonnage was conveyed by these lorry services in a recent test period than in the corresponding period of the previous year.

I am glad to say that these results have been achieved despite the continual tendency of business which increases the difficulty of handling a given tonnage, the reasons for which I have explained in previous years. For 1933, compared with 1932, there was an increase in the number of consignments per ton of goods traffic of about 3 per cent. Compared with ten years ago the number of consignments per ton of goods traffic has increased by 37 per cent. To put the matter another way, if the weight per consignment had been the same in 1933 as it was in 1932, we should have handled 2,750,000 fewer consignments, and if the weight per consignment had been the same as it was in 1923, 27,500,000 fewer consignments would have been dealt with. In spite of the increase in the number of consignments per ton, however, the average time occupied in handling 100 tons of traffic in 1933 was 128 man-hours, compared with 130 in 1932 and with 136 in 1923.

#### Locomotive Efficiency

A substantial contribution to our economies has been made by the increased technical and operating efficiency

of our locomotive stock. During the 11 years since amalgamation, the number of locomotives has been reduced from 10,316 to 8,226 or 20 per cent., the weight by 11 per cent., and the tractive power by 9 per cent. By a reduction from 393 to 219 types in the same period, considerable progress in economic standardisation has been made. Notwithstanding the total decreased weight and power, the average unit has increased by 11½ per cent. in weight and 14½ per cent. in tractive power. Engine miles in the same period have decreased by 8 per cent., but the quality of services rendered by locomotives goes on increasing in regard to speeds, loads, heating of trains, heating of water for lavatories and providing electric lighting.

The reduction in units and the meeting of these greater demands have been made possible by:—closer relationship of designs to locomotive tasks; greater availability, due to curtailment of time in shops awaiting and under repair, which was formerly about 5½ weeks and is now under a week; gradually extending the mileage done between general repairs by no less than 80 per cent.; and increased miles and hours per locomotive day which were 6 per cent. better in 1933 than in 1932, the best performance yet attained.

Compared with 1925 we now get 5 per cent. more train miles per train hour per passenger locomotive and 17 per cent. for freight locomotives; we have 41 per cent. less assisting with a second locomotive for passenger trains and 63 per cent. less for freight trains, and we do about 17 per cent. less shunting for the two classes of work together. Per 100 train miles the passenger engines consume 44 lb., and the freight engines 112 lb. less coal despite the service additional to traction now performed, and in each case 12 per cent. less oil is used.

Tractive effort and design cannot be allowed to remain static, and many of you may have been interested in our latest product of construction—the new 4-6-2 type superheated 4-cylinder simple engines, designed and built in the company's works for the Anglo-Scottish services. This develops a tractive effort of 40,300 lb., an increase of 22 per cent. compared with the "Royal Scot" type, and is capable of hauling trains of 500 tons between Euston and Glasgow. You will realise the economic import of the new design by the fact that two engines, *The Princess Royal* and *Princess Elizabeth*, are hauling alternately throughout, without change or assistance *en route*, the 10.0 a.m. from Euston and the 10.0 a.m. from Glasgow, a distance in each direction of 401 miles (the longest continuous locomotive run of any railway in this country), which, when worked by the "Royal Scot" type, required three locomotives. A new mixed traffic engine of the 4-6-0 type is being built for handling more efficiently both express passenger and express freight trains, in order to get a more intensive user.

We are now reaping the advantage of our individual costing of locomotives in having a more exact and scientific direction to our renewal programme. We have also found that the working costs of certain modern types show definite economies compared with those of earlier locomotives which have part of their physical life still unused while still doing their job as well as they were designed to do. Replacement of such types by modern units enables net savings to be effected, and in view of this, and the greater interchangeability of the newer types, we decided to build beyond our ordinary renewal programme, and have recently placed orders with British firms for 50 4-6-0 superheated 2-cylinder mixed traffic engines, and 50 4-6-0 superheated 3-cylinder passenger engines, to displace 121 existing units. Their employment will result in a saving in coal consumption, in cost of repairs per unit and longer time in which they are available for traffic. We also hope that we have helped to stimulate the trade by placing these orders at a time of great depression.

The original layout of engine shed accommodation had a rigidity in its framework for engine working which was difficult to escape or remake without great expense. We are, however, tackling this problem resolutely in order to obtain the best out of our greater locomotive capacity. We are quickening all the processes in the running sheds from coaling to ash disposal; and by improved layout, and a better sequence of operations, we are enabled to get a quicker turn

round of the locomotives and obtain the greatest active use from them.

#### Signalling

The most intensive and economic use of many sections of the line at times of pressure has only been possible by our extensive policy started several years ago of improving signalling equipment. By December, 1933, 334 schemes were completed, with an anticipated net return of well over 20 per cent. on the outlay involved.

#### Royal Scot Visit to America

You know from the press all about the tour of the Royal Scot through the United States and Canada. Through the medium of this tour we obtained unexampled publicity, far greater than any advertising programme on any ordinary lines has ever given. But I would like to emphasise that the venture could not have been carried through with such unequalled success without that tremendous and generous assistance afforded by the railways and authorities in all parts of the two great countries, which I here publicly acknowledge. They put all their resources at our disposal most spontaneously and efficiently. The L.M.S. were the only British exhibitors at the great Chicago Exhibition, although the other European countries followed their usual practice of advertising their attractions freely. There is no doubt the experiment gripped the imagination of the American people in an entirely unprecedented manner.

The interest of the American citizen was greatly stimulated by the use we obtained of the three great agencies of modern publicity—the press, the cinema, and broadcasting—entirely without expense and on an unparalleled scale. Ordinary advertising on such lines would have cost hundreds of thousands of pounds, for the cinema exhibits alone went into most of the countries of the world. No less than 3,021,601 visitors inspected the train, and many more millions watched its passage *en route*, crowds assembling at various points for this purpose. The momentum gained in publicity was continued in this country also, without direct expense, for the train has been exhibited in our chief towns and visited by crowds of equal magnitude. It is a matter for congratulation and pride and speaks well for British workmanship, design and methods that a comparatively lightweight British train has travelled more than 11,700 miles under its own steam, contending with widely differing and severe conditions—the greatest temperature was 110° in the shade, and the lowest 8° above zero—that not a single spare part was needed, notwithstanding such strenuous work up mountain summits of 6,100 feet and 5,600 feet above sea-level, with grades of 1 in 40-45 and unassisted. On the technical side, the lessons learned have been important. On the commercial side, something definite has been accomplished to offset the strenuous subsidising activities of European governments and travel agencies, hitherto so successful. On the Imperial side, a worthy contribution has been made to British prestige. A very welcome termination of the tour was the receipt of a gracious message from the King congratulating all concerned on the success of the enterprise, and the Royal recognition of the driver, who was presented by the Rt. Hon. J. H. Thomas, on behalf of His Majesty, with the medal of the Order of the British Empire.

#### Pooling Schemes

The pooling schemes with the L.N.E. and G.W. companies for competitive traffic, to which I referred last year, have received the Minister's approval. The arrangements for interavailability of tickets have increased public facilities and the value of railway travel, and, where possible, improvements are also being provided in the handling and transit of goods traffic. The achievement of the objects of the pooling agreements is naturally gradual, but with the experience now gained and the settlement of certain basic principles involved, the development of schemes of some magnitude has been assisted and the net economies will be steadily accumulative, being effected without undue disturbance to the staffs, and with the acquiescence of the traders concerned where important freight facilities are affected.

#### Air Transport

We have under close consideration the question of exercising our air transport powers, reviewing from time to time

the various developments in this country. Although it cannot be said that any commercial air services in the world yet stand upon a secure profit-making basis, and this country is not specially suited for such services, the matter has assumed some urgency with us owing to the more recent activities of certain established airway companies and their preparations for the inauguration of regular commercial services between important centres in competition with our rail services.

It is desirable for the four main line companies to act in co-operation, especially in view of their overlapping interests, and we are agreed that it would be more to our advantage to act in conjunction with them rather than ourselves to attempt to perform the various technical services required. We are accordingly in process of negotiation with Imperial Airways Limited for a separate company, jointly owned with them, to provide such services as any of the railway companies may desire, but matters are not sufficiently advanced for me to give more specific details.

#### Research

I mentioned last year the reorganisation of the Research Department by which all our laboratories were brought under one control, and the hopes I then expressed that this would strengthen the position of research in the company are now being realised. The ready accessibility of the scientific staff and the facilities they possess for carrying out experiments have enabled all departments to approach them for advice and help in their day-to-day problems and difficulties, and to consult them as regards the development of new ideas. We continue to attach great importance to the principle of job analysis, which breaks down any operation into its simplest elements and examines each by costing methods with the object of ascertaining the simplest and cheapest way of doing the job in the future, and this method of attack has contributed greatly to the large economies we have made. Scientific research is a natural complement to job analysis, as by its aid technical problems are broken down in the same way and scientific knowledge is utilised to find the most economic and effective solution. It has been very encouraging during the past year to note the number and variety of subjects that have been referred to the research staff for opinion or investigation. The value to the company of this assistance to the departments represents in the aggregate a large sum of money impossible to estimate exactly but far greater than the expenditure on research.

An interesting series of investigations has been recently started in connection with some aspects of railway travel which directly affect the comfort of passengers, namely, lighting, ventilation and the source of noise and dirt in trains. Each of these subjects demands a specialised technique for the study of existing conditions, and it is being increasingly realised that one of the most valuable functions of the research staff is to act as specialists in the technique of measurement. The technical departments are constantly engaged in carrying out trials of new materials and new methods, and the growing association of the Research Department with this work will be of great value, both in planning the trials and in carrying out the measurements necessary to enable definite conclusions to be reached. The value of the assistance given by the eminent scientists on our committee cannot be overstated.

#### Euston House

Owing to the magnitude and complexity of the L.M.S., the co-operation of several departments is often needed to secure quick and effective action and it is thus important for all the departmental headquarters' staffs and the Executive to be as near together as possible, so as to facilitate rapid decisions on the numerous questions such as standard practices and rates in which central control is necessary on grounds of policy. Ever since amalgamation, the work of welding the constituent companies into a single entity has gone on, and there has been a gradual concentration of the headquarters' staffs in the neighbourhood of Euston, but a number of the offices are scattered in old private houses with unsuitable accommodation and important sections of the staff are still at Derby.

In 1932 an opportunity occurred to acquire the adjoining

site in Seymour Street, and, by building new offices, to complete the concentration of headquarters' staff of those departments which have the most direct contact with the travelling public (Commercial, Operating and Stores-Purchase), and to bring together the remaining departments in the existing accommodation at Euston. The new building in Seymour Street, Euston House, consisting of a basement and nine floors, which will provide accommodation for upwards of 1,300 people, has been erected in eleven months. Approximately half the expenditure has been recognised by the Ministry of Transport as fulfilling part of the company's obligations under the scheme for the remission of passenger duty.

Those of you who have seen it will, I am sure, agree that the architects, Mr. Heal and Mr. Hamlyn, have given us an excellent example of modern architectural design. Internally it provides the most up-to-date type of office accommodation in which everything has been planned so as to contribute towards the efficiency and comfort of the staff and prevent all unnecessary movement of individuals. The advantages of bringing together the Public Contact Departments are briefly—(a) information on our various services will be more rapidly available to the public; (b) it will facilitate the making of quick decisions by operating and commercial departments; (c) it will add greatly to the effectiveness of our commercial organisation; and (d) it will enable us to effect economies.

#### The Wages Problem

You will remember that last year I explained the position which had arisen in connection with the proceedings of the National Wages Board, and I pointed out to you the defects which existed in the machinery. Shortly afterwards, the four companies gave notice, under the provisions of the Railways Act of 1921, to determine in 12 months' time the reference of any questions to the Central Wages Board, or, on appeal, to the National Wages Board, and that notice expires on March 3 next. When sending the notice we advised the unions that the railway companies were prepared to consider the adoption of some more suitable form of procedure and discussions with the unions have taken place, and as a result of these discussions we made certain written proposals to the representatives of the unions. These have not been accepted, and it is probable that there will be further meetings with the unions on the matter.

The ordinary channels of communication with the staff will continue to be used, and we have made it clear to the unions, as I did to you a year ago, that we do not wish to depart from the long-established principle of negotiating machinery, which enables matters of major importance to be dealt with nationally where there is failure to reach a mutual settlement, and that a genuine means of wage conciliation is clearly desirable, and this the old arrangements did not provide.

#### The Road Problem

On this subject there have been some important developments recently, and in order that you may more easily estimate the progress made since our last meeting, I will describe, very briefly, the position as it then existed. Last year I reviewed the various stages of the Road problem from the abortive application to Parliament for powers in 1921 to the actual grant of powers in 1928, the policy since adopted in exercising them, to the system of licensing of passenger vehicles introduced in 1930. I examined the attitude of the State towards the development and finance of road use and the various steps leading up to the appointment of the Salter Conference. I mentioned that their unanimous report had then been before the Government for seven months, but beyond that the farthest I could go was to express a hope that the Government in its proposals for legislation would face the issue fairly and squarely. I also specially dwelt upon the fact that the railways' right to make reasonable arrangements with particular firms as to charges for the conveyance of their merchandise had been successfully challenged, an arrangement for charging a composite rate on the consignments of a Bristol firm having been declared illegal, and that the situation was under urgent consideration with a view to representations to the Government for remedial legislation.

The Salter Report recommendations were dealt with in the Budget of 1933, and in the Road and Rail Traffic Act, 1933 (in respect of the licensing and regulation of freight road transport). The new licence duties imposed average 10 per cent. below those proposed in the Salter Report, and are therefore considerably below those originally suggested by the railways to the Chancellor. But taken together with the licence conditions set up, we recognise that a real foundation has been laid and a *bona fide* effort made for a proper treatment of the question. We shall continue to watch both the adequacy of the provisions now made and the efficiency with which the Act is administered, from the point of view, not of a mere protection of the railways, but of two broad principles. First—that any commercial enterprise on the public highway should be as far as possible self-supporting and not kept up by open or hidden subsidy; and second—that there should be no discrimination in the public regulations of the various forms of transport. Last year the direct dividend return from our own investments in road passenger undertakings were practically 7 per cent., the total earnings being rather higher.

During the year the four main line companies jointly acquired the old established businesses of Carter Paterson & Co. and Hay's Wharf Cartage Company—better known as Pickfords, whose transport facilities, extending in certain instances over a period of nearly 200 years, are unique in many respects. It will be our aim to maintain their high traditions. Nothing will be done to destroy their individuality, but every effort made to co-ordinate their facilities with our own, so that by avoiding wasteful competition and pooling all available resources, the maximum degree of efficiency in the two forms of service can be secured, with a corresponding gain in the question of congestion in the London area with a complete overhaul of London goods transport.

#### Weak Bridges

There are two other allied questions to which I must refer. First, weak bridges, to which you have seen many references in the press recently. The provisions of the new Act have not been brought into operation by the Minister pending conferences between the parties concerned, *i.e.*, bridge authorities (including the railway companies), local authorities and road users, as to the steps to be taken with a view to minimising, as far as practicable, the inconvenience caused to road users. You may have seen some attacks, by advertisements, on the railway companies on this question. I feel bound to say, here and now, that the facts are not correctly stated, and the deductions made therefrom are completely unjustified, while the statement of the railway companies' alleged wishes in the matter is quite without foundation.

#### Agreed Charges

Second, agreed charges or flat rates for rail transport. Under the Act we shall have the right to quote agreed charges for the carriage of the merchandise of any trader, provided any such charge, including the conditions attached to it, receives the approval of the Railway Rates Tribunal. This part of the Act came into force as from January 1, 1934, and a number of agreements have been entered into with traders since that date and are now before the Tribunal. Under the Act also a Transport Advisory Council has been appointed by the Minister to advise on matters relating to the means of and facilities for transport and their co-ordination, improvement and development, and I feel that this council will be of great service. Sir Herbert Walker, Sir James Milne and myself are included to represent the railway companies.

#### Outlook for 1934

Trade promises well to be mainly upgrade, but at what pace of recovery it is impossible to forecast. It is certainly too early to throw up our hats as though all difficulties were past. We are still a nation whose productive capacity and direction have been framed for a considerable proportion of export trade, and we are ill at ease in the dress of new nationalism, to live as a self-contained unit, which the march of world events has more or less forced us to wear. Our

railway lies over the heart of that great industrial Britain, which is interrelated with progress abroad. People who never leave the south and never see for themselves the baffling problem of the future of Wigan or Barrow, or the objective riddle of the cotton industry, fail to realise the true nature of the recovery problem or how the great arteries of our system may still be denied the ample supplies for which they were made. If the coal-mining industry is finding a new equilibrium on a lower total consumption; if the shipbuilding industry is to follow that trend of reduced international trade which must result from the self-sufficiency of national units; if the great cotton industry has now to meet full-grown rivals in India, China and Japan, and can nevermore assert its world supremacy; if the home markets available to us no longer have continuously increasing populations; then certain vital areas of industrial Britain must suffer prolonged depression, which no amount of activity in the luxury and distributive industries of the south can possibly outweigh. All these factors weigh with special impact upon the areas served by this railway, and that fact London so often forgets. But the activities of London are also full of meaning for our future. For deranged currencies and exchange restrictions are not mere pieces of financial machinery—they go to the root of a recovery of export and import trade, and he who would assess the prospects of that trade recovery which most concerns us, may well have his eyes on the politics of all the chief countries of the world. Foreign affairs continue to be of immediate practical importance to us. I believe our domestic recovery is very well based indeed, though it is patchy and uncertain in places, and that it can withstand any ordinary set-back in America, or perhaps in Europe, but certainly not in both at once. The outlook for international trade is too uncertain for confidence in the domestic situation to be unqualified by doubts. So far as our own traffics are concerned, we were working during the first half of 1933 to 78 per cent. of the year 1929, and during the second to 80½ per cent., while so far this year we have made 84 per cent. But the balance, 16 per cent., still has to be made good before we return to the position even of a year which we were not conscious at the time was anything to be particularly satisfied with. Nevertheless, anyone who cares to examine—first, the probabilities of an increase of say 10 per cent. of the present volume of trade; second, its effects upon our gross revenues, and third upon our net receipts, may well begin to take heart of grace once again, whatever class of stock he may hold. The situation may not be set fair, but the barometer is rising, and the spirit of keenness and enterprise animates to an extent greater than ever before the personnel of this great undertaking.

I have now to move: "That the report now read, together with the statement of accounts, be received and adopted."

Mr. E. B. Fielden, M.P. (Deputy Chairman), seconded the resolution.

#### Remarks of Shareholders

Councillor Wilson pointed out that during the year they had recovered their lost passenger traffic to the extent of £11,912,817, and he thought it very commendable and only fair that they should compliment the Chairman, Sir Josiah Stamp, Mr. Glynn Roberts, the Secretary, and Mr. Ashton Davies, the Chief Commercial Manager, who had justified the confidence they placed in him a year ago. He estimated that the Post Office for the financial year just ended made a profit of at least £1,500,000 on C.O.D. parcels up to 11 lb. weight. Manufacturers would be glad if the President would consider this C.O.D. traffic to any weight and any amount to be collected. It would, he believed, make in one year over £3,000,000. In quoting rates the railways were unfairly handicapped, because their road competitors knew exactly what rates the Rates Tribunal had fixed and could at once underquote them. They had either got to scrap the Rates Tribunal and have some fair, open competition, or the Rates Tribunal should rope in all the road transport under the same conditions.

Mr. Macadam congratulated the Chairman on the very pleasing state of the capital expenditure account. They spent £967,000 in capital expenditure and not a penny piece of that was new money; it all came out of land and other

property which was sold, as being of no further use to the company. He criticised the method adopted in allocating general charges to the different accounts. A charge of something like £40,000 had been taken away from the catering department and placed against the expenses of railway working. He considered the charges at the company's hotels both for rooms and food to be excessive, and that a larger profit would be made by paying more attention to the needs of the moderate ordinary person. The balance sheet showed that the outstanding debts owing to the company amounted to the enormous figure of £10,316,296. A great effort should be made to get a large proportion of that money in so that it would not be necessary to get an overdraft from the bank.

Sir Charles Stuart-Williams expressed his appreciation both of the tale that had been told and of the admirable way in which it had been told. After the worst year in the history of the United Kingdom, the Board had managed to distribute £650,000 more in the way of dividends, and that after maintaining their high standard of maintenance and providing a service at least as good as during the last few years and, in many respects, definitely better. On the difficult question of wages and the Wages Tribunal, he thought the Board should realise that stockholders were whole-heartedly with them in the attitude they had taken up. The companies had behaved throughout with great discretion and great restraint, and their case had been in every detail thoroughly well documented. There was also the problem of the increased deficiency on the working of the Northern Counties Railway in Northern Ireland, about which the Chairman might be able to say something. Before even a modest dividend could be paid on the ordinary stock he estimated that about another £4,500,000 in net receipts would be needed. That improvement could only be produced from the heavy trades, and taking it by and large, would not be possible without a marked increase in export traffic. The iron and steel trades were grappling with the rationalisation of that industry as a whole, and he thought the railways and shipping companies should be asked to join forces with them in a gigantic and concerted effort to improve export trade.

Mr. E. B. Rowley agreed that railway salesmanship to-day was one of the chief qualifications of a railway administrator and he desired to congratulate the Board on their wisdom in appointing Mr. Ashton Davies to the special job of obtaining increased and fresh business for the company. For the last few months the public had undoubtedly been more railway-minded than for many years past. For this he thought they had greatly to thank Mr. Ashton Davies and his staff, who by their keenness, courtesy and practical acts had made this railway much more popular with the travelling public and with traders. Never in the history of this company had the management been keener or more capable than it was to-day of delivering to the public the goods which the public required. There were, he believed, 120,000 shareholders in this company, and if they each spent £10 a year with it instead of giving their custom to other firms, that would mean £1,250,000 in receipts. He personally had no doubt that the company would go forward, and its financial position should be much stronger 12 months hence.

Miss Hendrick suggested that there should be a direct omnibus service from Wembley, Harrow and Harlesden to Oxford Street.

Mr. James Daniells called attention to the fact that the charges for small parcels on the Metropolitan Railway section of the London Passenger Transport Board were in some cases 50 per cent. less than by Carter Paterson and Pickfords. Many a small parcel would go for 3d. on the Metropolitan Railway, for which Carter Paterson charged 5d. As this company was now interested in Carter Paterson, he asked that this matter might be looked into.

Mr. John Hedges thought that greater economies would be possible if stricter supervision were maintained over the staff generally.

Mr. T. Artro Morris read (on behalf of Mr. Edward Mines, whose voice owing to illness was not very audible) a statement criticising the directors for too close an adherence to steel rails, and enunciating a scheme for a "speedway track"

along the railway using the company's own land. This scheme, he considered, would bring to the coffers of the railway companies £50,000,000 to £60,000,000 a year more, and he suggested that the Board should consider it in real earnest. The railways were carrying too much deadweight for light traffic and for passengers.

Mr. Smerdon asked whether the Board had considered the question of abolishing first class carriages in view of their being so sparsely filled.

Mr. A. J. Knight raised the question of water softeners, suggesting that they cost too much in repairs. With regard to the Royal Scot, which was on show at Leicester, the public should have been shown the other side of the picture in the difficulties with the turn-table there. He asked for a return to two meetings a year, and free passes for shareholders to the meetings as had been the practice on the Midland Railway.

Miss Bunney asked if there were any retiring age for directors, and if there could be a smaller Board. When Mr. Irwin was Secretary and she asked what some of the chief officials were getting, she was told that "it was not in the interests of the company to give that information."

Mr. Ashley Brown confessed he felt a little anxious when he heard the Chairman refer to a great change like the drop in the passenger fares as "an interesting experiment." An experiment implied an alternative, and were they to understand that the alternative to the 1d. a mile fare was a fare at 1½d., which for years past had steadily dropped down, until in the end the railways had to adopt a 1d. fare because there was no alternative whatever?

Mr. Roberts expressed his satisfaction that in response to his application to Mr. Ashton Davies a particular express from St. Pancras to Bradford now stopped regularly at Cleckheaton, and that on a recent holiday in Northern Ireland he and his son had been allowed to return via Stranraer though their tickets were via Heysham. He asked that the waiting-room at Low Moor should be improved.

#### Chairman's Reply

The Chairman: We have listened with very great interest to the comments that have been made, and the various criticisms will be very carefully noted. The compliments will be passed on to the officers and staff who have deserved them, but I will confine myself now to dealing with those things which were specifically questions.

Mr. James Wilson, who is a very great expert on the subject, has raised the problem of the C.O.D. parcels traffic. I would like to remind him that a good part of that revenue which he spoke of as being taken by the Post Office comes to us too for the services which we render to them, and without the services that we render to the Post Office, they could not perform what they do. But all the same the general problem is receiving our constant attention and the attention of all the railways combined, and you may be quite sure that our Commercial Department will do everything it can in the interests of the company as well as of the traders, to carry the various propositions that have been put before them to a practical issue. It is no good indulging individual whims if they are not profitable for the shareholders as a whole, but anything that has any prospect of general application you may be quite sure we shall be delighted to take up.

Mr. Macadam made some various references, as he always does, with great knowledge and insight into the accounts. One little point has escaped him, however, in that searching criticism which he made on the re-allocation of the general charges. We have only acted in accordance with the dictates and requirements of the Ministry of Transport, who lay down how this is to be done, and we follow their methods and what is put down for us to do.

He then went on to refer to the subject of hotels. In the last year or two we have made a very large number of reductions in the tariffs for rooms, and they have been put into force with results which we are watching very carefully. The general results of our hotels and catering department will, I think, stand comparison with those of any other place in the world. At all our hotels, the bedroom prices differ according to position, and in nearly all of them there are prices which reach humbler persons. The whole question

of hotel tariffs, from the point of view of the public interest and the best profits to the hotel business, is having our constant attention, and various revisions in that direction have been made fairly recently. Mr. Macadam then went on to refer to the liabilities in our balance sheet and the money due to us. The money due to us, he will find, if he goes back, has been steadily reduced, and he is under a complete misapprehension if he imagines that we are in the habit of working on bank overdrafts. I am sure we did not have a bank overdraft at all during the whole of that year. Therefore, the other criticisms which he made, based on that, hardly arise.

A third question was raised by Sir Charles Stuart-Williams relating to Northern Ireland. Of course, that position gives us very great anxiety. It is one of very great difficulty. In common with other railways in Northern Ireland, we have been most severely hit by competition from public roads, quite apart from the damage caused by the strike that I have referred to already, and the general industrial position. The railways there have made joint representations to the Government of Northern Ireland, and are hopeful that in the near future there will be legislative and administrative action by the Government which will secure equality of treatment in transport conditions in that area. That equality of treatment is certainly sadly lacking at present. Until we see what action the Government will take and whether, under equality of treatment, there is still a deficiency, it is very difficult for me to say anything more on the future course of events that Sir Charles Stuart-Williams refers to, but we are making very strong representations to the Government that they should take the railway problem much more firmly in hand.

I quite agree with Mr. Rowley, who tells us that the shareholders could do so much more than they do. If each one would exert himself to quite a small extent, it would make quite an appreciable difference to our total revenues. Miss Hendrick wants an omnibus to the West End from Hendon. That has nothing to do with this railway, but the next time I see Lord Ashfield I will pass the suggestion on to him.

Very useful references were made to the Metropolitan Railway's parcel traffic. We have had only about six months under which the new conditions have applied, but arrangements are already being made for co-ordinating properly that traffic with the general run of railway and road-borne parcels traffic in the Metropolitan area. The arrangements at present are in a state of flux, but Mr. Daniells is well ahead of time with them.

Mr. Hedges made various references to expenditure. I do not think any of them were very specific, but he wanted greater economies. The working expenses have been reduced 25 per cent., or £18,000,000, since the amalgamation, and we are, as I said in my speech, at every point watching expenditure in order to achieve the same result that we have had before, at a less cost.

Mr. Mines and his interpreter have a very elaborate and interesting scheme. I can assure them that that scheme will receive the closest attention of the Board and the officers, as all such well-thought-out schemes do. I can see straightaway a number of very great difficulties, and I should doubt very much whether the rosy views that he holds out as to the comparison between the economics of that speedway and the power of the locomotive running on steel rails, will really stand very searching tests. However, I am not going to prejudge the issue. His essay or his speech, and his diagrams and pictures, will receive the most careful consideration.

The next reference was to the question of the abolition of first class carriages. Well, first class carriages still represent a very material revenue to us, and it is not a matter to be dismissed lightly as one which is easy to do. The general policy with regard to first class fares is under continual review by the four main line railway companies taken together, but certainly not in the light-hearted way in which the speaker imagined that it could be disposed of.

Mr. Ashley Brown has referred to my description of it as an interesting experiment—this reduction of fares. I did not say "interesting"; I said "experiment." It is a very serious experiment, but as I said last year, if you imagine that if you simply do it, it is bound to be profitable, you are

deceiving yourselves. It was touch and go even last year whether it made money for us or not and we are not yet satisfied that the experiment will ultimately produce more revenue. We hope it will; the signs are very favourable; but we are far from saying that it is such an easy thing as Mr. Ashley Brown would like you to believe. We have to move cautiously and we look anxiously at these figures of traffic, which, compared with last year, show a substantial drop, although we carried a large number of additional passengers. With reference to cheap fares, it is not generally appreciated that our average fare before the summer tickets were introduced was 0·7d. per passenger mile, so that there is not all the scope for the attraction of a very large amount of additional traffic by the reduction of a very low figure like that, as might be imagined. However, everything Mr. Ashley Brown said will be very carefully studied.

Mr. Roberts, I am very glad that justice has been done to Cleckheaton, and also, I hope, to Low Moor and other beauty spots in which you are interested. I hope this public advertisement which has been given to Mr. Ashton Davies' compliance with regard to the stopping of crack express trains will not lead to a flood of applications to stop these trains at intermediate points, because, although we may give great satisfaction to Mr. Roberts, we may hear about it from other people who would like to have a throughout train if they could get it. However, I am not grudging him in the least the victories he has won in Cleckheaton, Low Moor, Larne and Stranraer, and I hope he will succeed in getting more.

A question was raised about water softening. I do not know what the gentleman has in mind about that. He is all wrong in his facts and figures. The economies made as a result of introducing those plants were very great in anticipation and have been much greater in realisation. The results upon our locomotive maintenance and repairs have been very striking and even the cost of water has been reduced, and we are now able to recover even the spillage from the troughs of softened water. There are a great number of economic factors involved which I think the speaker has missed. He does not like it because we showed the *Royal Scot* and not the turntable. People wanted to see the *Royal Scot* and they did not ask to see the turntable. However, we will look at the turntable and see if there is anything wrong with it. I am quite sure that outside Ireland it would not be possible for us to hold two annual meetings. The question of free tickets is a well worn and exhausted one.

I should like to tell Miss Bunney that the replies she has had in previous years as to the salaries of officers, the retiring age of directors and so on are correct and would still be given to-day. The same replies that Mr. Irwin has given on those subjects and that I have given from the chair still stand. There is no age of retirement for directors and one is not regarded as necessary.

I think I have dealt as fairly as I can with the various questions, and the resolution having been moved and seconded, that the report now read, with the statement of accounts, be received and adopted, I will put that to the meeting.

The resolution was put to the meeting and declared carried unanimously.

The Chairman: I have another resolution to move: "That final dividends for the year ended December 31 last be hereby declared (less income tax) as follows: £2 per cent. upon the 4 per cent. guaranteed stock; £2 10s. per cent. upon the 4 per cent. preference stock; and £3 2s. 6d. per cent. upon the 5 per cent. redeemable preference stock."

The Deputy Chairman: I beg to second that.

The resolution was put to the meeting and declared carried.

Sir John Beale moved "That Mr. Charles Booth, Mr. Edward Brocklehurst Fielden, M.P., Mr. Joseph Bruce Ismay, Sir Francis L'Estrange Joseph, C.B.E., D.L., The Rt. Hon. Viscount Knutsford, Mr. Albert Evans Pullar, and Sir Josiah Charles Stamp, G.B.E., be, and they are hereby, re-elected directors of the company."

Sir Thomas Williams: I beg to second that.

Mr. James Wilson: I beg to support the mover and seconder of the resolution.

The resolution was put to the meeting and declared carried unanimously.

The Chairman: Thank you. There is a fourth resolution to be moved regarding the auditors of the company.

Mr. James Wilson: I have very great pleasure in moving "That Sir Nicholas Edwin Waterhouse, K.B.E., be, and he is hereby, re-elected an auditor of the accounts of the company."

Commander A. F. Inglefield: I beg to second that.

The resolution was put to the meeting and declared carried.

Colonel Hilder: Ladies and gentlemen, I am sure none of us would like to leave this hall until we have accorded a very hearty vote of thanks to our Chairman, Sir Josiah Stamp, for the very comprehensive statement that he has put before us. I would like to associate with this vote of thanks his co-directors and the very efficient members of his staff. Will someone be good enough to second it?

The resolution was duly seconded, and on being put to the meeting was declared carried unanimously.

The Chairman: On behalf of myself and the Board and the Officers, I thank you, Sir, and you, ladies and gentlemen, for the way you received that proposition. We are always glad to meet our friends here and tell them all about the interests of the business in which we are all engaged.

The proceedings then terminated.

#### SPECIAL GENERAL MEETING

A special general meeting of the London Midland & Scottish Railway Company was held at Euston station on Tuesday, February 27, Mr. Edward B. Fielden, Deputy Chairman of the company, presiding. Mr. G. Royd Smith, Assistant Secretary, read the notice convening the meeting.

The Chairman: This meeting is held in accordance with the Standing Orders of Parliament to submit for your approval a Bill and a Provisional Order.

The first is the London Midland & Scottish Railway Bill which is promoted by the company and which provides for the construction of a short line of railway and for the acquisition of additional lands required for the purposes of your undertaking in the Counties of Essex, Hertford, Lancaster, and York. The proposed railway, about half a mile in length, is required to form a connecting link between the old Midland and North Western lines at Hazel Grove, near Stockport. The additional lands to be acquired are situate mainly in the County of Essex and are required for widening and developing the company's Southend line. The remainder consist of areas adjoining our railways near Watford, and in the Liverpool and Manchester districts, to be used for goods traffic accommodation. The Bill also provides for extending the time limited by the company's Act of 1931 for the compulsory purchase of lands in the Counties of Chester, Hertford, Lancaster, and Warwick.

The Provisional Order is promoted by the company for the purpose of empowering them to acquire lands in the County of Lanark required for the company's purposes, and for extending the periods for the completion of various railways and works in Scotland authorised by various Caledonian Railway Acts and Orders.

In reply to a question, the Chairman said: There is no intention of electrifying the line to Southend at the present time.

The Bill and Provisional Order were approved.

#### Diesel Engine Users Association

The twenty-first anniversary dinner of the Association took place on February 27 at Pagani's Restaurant, London, with the president, Mr. C. F. Mounsden in the chair. In referring to the future of the diesel engine the president remarked that the railways were, in various degrees, experimenting with main line or smaller diesel locomotives, and here as well as in road transport and aircraft there would undoubtedly be great developments. In addition to a special toast to the original members of the association an extra toast was drunk to Mr. Percy Still, who pioneered and guided the early stages of the society but was unfortunately too ill to be present. Mr. Chas. Day, M.Sc., the new president of the Institution of Mechanical Engineers, proposed "The Association," and musical honours were paid to the Joint Hon. Secretaries, Eng. Admiral J. Hope Harrison and Mr. H. V. Stead, M.Sc.

## GREAT WESTERN RAILWAY COMPANY

### *Tributes to Viscount Churchill—Revival of industry—Dock traffic and the coal trade—Development policy—Air transport—Future prospects*

The annual general meeting of the Great Western Railway Company was held at Paddington Station on Wednesday, February 28, the Rt. Hon. Sir Robert Horne, G.B.E., K.C., M.P. (Chairman of the company), presiding.

The Secretary (Mr. F. R. E. Davis) read the notice convening the meeting.

#### **Tributes to the late Chairman**

The Chairman: Ladies and gentlemen, we are assembled to-day in a situation which partakes of the character of tragedy. Over a long period of years this annual gathering has been presided over by one, held in eminent esteem and deep affection by all of us, in the person of Viscount Churchill. At our meeting last year he was—in gaiety of spirit and to all appearance in physique—the youngest amongst us. I am sure that no one of us contemplated the possibility of another Chairman during our lives. And yet he has been cut off, all untimely; and in the strangeness of the atmosphere which is associated with his absence—so much had he become a part of the life of the Great Western—we find it very difficult to adjust ourselves to our new bearings.

Since his death, the public, through the press and otherwise, has borne repeated testimony to the skill and sagacity and statesmanship which he showed, not merely in conducting our business, but in dealing with matters of wider interest to all the railways in relation to public policy. We here to-day, within these walls, being intimately associated with him, recall with a poignant sense of loss the debonair presence which he brought to our proceedings; the courtesy of his welcome; his unfailing urbanity; his ever ready consideration for every member of the company; his happy flair with the questioner anxious for information; and, above all, his obvious pride in this great service, over which he presided with such fitting dignity. Our annual meetings under his chairmanship were more like family parties, of which the prevailing note was one of harmonious and cordial unity.

And what he achieved in this room he accomplished in still greater degree by the influence which he exerted throughout our whole railway system. The staff became a band of brothers under his leadership. He diffused a spirit of camaraderie which infected the whole organisation, and produced results which could only be obtained by wholehearted co-operation. We, in taking farewell of him, will keep in our memory that, down to the humblest ranks, he allowed no one to forget the high traditions of the great company which we serve, and the duty of each and all of us to it to sustain its proud reputation for courtesy and for efficiency. Long, ladies and gentlemen, shall we deplore his loss.

It has been indicated to me that some of the shareholders would like to move a resolution with regard to Lord Churchill, and expressing sympathy with his widow. If you will allow me, I shall now call upon Sir Charles Stuart-Williams.

Sir Charles Stuart-Williams: Mr. Chairman, my Lords, ladies and gentlemen, I beg to move the following resolution: "The proprietors of the Great Western Railway assembled at Paddington on February 28, 1934, unanimously desire to place on record their sense of the great loss sustained by the undertaking through the death of Viscount Churchill for nearly twenty-six years Chairman of the company, and to tender to Lady Churchill their deep sympathy with her in her bereavement."

The Chairman: I call upon Colonel Hilder.

Lt.-Colonel Frank Hilder: Mr. Chairman, I beg to second that. If I may be permitted to speak for stockholders, this is the first opportunity stockholders have had of voicing

their very deep regret at the loss which they and the Great Western Railway Company have sustained by the death of Viscount Churchill. As a very old stockholder, I can recall many interesting meetings, stormy and otherwise, but our criticisms were always met with an unfailing courtesy, goodwill and friendship which endeared him to all of us. I can only regret that he is not here to-day to congratulate the stockholders in that inimitable way of his, on its success and an early return to prosperity, and to congratulate the Great Western Railway on its return to that premier position which it always held in England. (Applause.)

(The resolution was put to the meeting and carried unanimously.)

The Chairman: Ladies and gentlemen, I would ask you to stand for a moment.

(All present stood in silence.)

The Chairman: Ladies and gentlemen, it is my sad and difficult task to succeed Lord Churchill—sad because he was my dear and intimate friend, and difficult because his particular place is one which it is almost impossible to fill. I confess I could not have been induced to make the attempt had it not been for the unanimous wish and encouragement of my colleagues on the Board; nor shall I have any ultimate success unless I have your confidence. I have no right to claim your indulgence, but I know that you will not withhold your confidence from one starting upon a new and formidable task, and that your generosity will sustain me, I have no doubt, in my every endeavour. I have had the honour and the privilege of being a Director of this company for ten years; I am familiar with its problems; and of one thing you may be certain: I shall not fail to give to your service the time and the energy which are required for the fulfilment of the duties and responsibilities of your Chairman. (Hear, hear and applause.)

I desire to take this opportunity of thanking your Deputy Chairman, Lord Palmer, not merely on my own behalf for the aid which he has so kindly promised me in my new office, but also on your behalf for the very notable assistance which he has given to this company through 36 years of ardent directorship. (Applause.) The peerage which His Majesty the King conferred on him last June was, I am sure, in the view of all of us, a very fitting recognition of the dignity of his life and character and of the public service which he has rendered in a great variety of ways to a widespread and grateful community.

#### **Vacancies on the Board**

Ladies and gentlemen, we do not propose to fill the vacancy which has been created by Lord Churchill's death. In pursuance of an announcement which he made from this chair last year, you resolved to leave it to the discretion of the directors to fill or not to fill casual vacancies. The directors have come to a decision to endeavour to conduct the business of the company with a smaller number of directors.

And now I will ask your attention to the record of our fortunes in the year 1933, and to such indications as we may prudently discern with regard to our prospects in the year 1934.

#### **The Year's Results**

The year which is dealt with in the accounts now before you may prove to be one of exceptional significance. It may be that the British people will look back to it as the turning-point of a very depressing period. By the end of 1933 our country was in a better shape than for several years past. During the year, a new spirit of hope had sprung up in the breasts of its people. There was a feeling of greater stability. The financial position of the nation had

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been re-established: the majority of our industrial organisations had used their time of trouble to dissect their establishments, to reduce their costs and to increase their efficiency. Confidence in ourselves had, in a considerable degree, returned and the future seemed to hold more promise. These conditions were reflected in the trade of the year. In every branch of activity, with the exception, unfortunately, of mining and cotton manufacture, it may be said that the production within our country has been appreciably augmented. Over the whole range of output industrial activity has, on the average, increased by 5·3 per cent. In some industries, in which we, as a railway company, are specially interested, the increases have been much larger. For example, activity in the iron and steel trades increased by 20 per cent.; in engineering and shipbuilding by 7 per cent.; and in non-ferrous metals by 5·8 per cent. These advances are heartening and encouraging, particularly when note is taken of the fact that the last quarter of last year gave the best results of all. This improved condition had its effect on railway prosperity, although the railways were necessarily slower to obtain advantage from the change than the industries themselves. The first six months of 1933 were not encouraging, but, in the second half of the period, the record of practically every week in the railway returns showed an advance upon the corresponding week of 1932.

So far as the Great Western Railway is concerned, the final figures of the year disclosed that, while the receipts of the first half of 1933 showed a diminution of £576,652, the second half almost entirely cancelled out this result, and we ended the year with gross receipts diminished by only £38,687 as compared with 1932. As you have learned from the report, our savings in expenditure much more than met this deficit and our net revenue showed an improvement over 1932 of £369,158.

I do not propose to deal in full detail with all the elements in the accounts. There is an interesting summary of them on page 4. You have doubtless studied the figures and I only intend, upon the present occasion, to point out some of the salient features of our business and to indicate the direction and trend of our policy in dealing with the many problems which confront railway administration to-day.

#### Capital Expenditure

I shall deal briefly with our capital account. Our net capital expenditure during the year, after crediting sales of land, &c., amounted to £1,420,280, and the overdraft on capital account now stands at £12,790,287 as compared with £13,843,287 twelve months ago. Included in our capital expenditure is a sum of £1,620,675 in respect of works approved by H.M. Government for grant under the Development (Loan Guarantees and Grants) Act, 1929. Similarly, in the estimated capital expenditure for the current year, which amounts to £1,393,000, a sum of £757,000 is in respect of works ranking for Government grant. An interesting item of £475,000 under "Subscriptions to other undertakings" is mainly in respect of the Great Western Company's share of the purchase price of Hay's Wharf Cartage Co. Ltd. (including Pickfords) and Carter Paterson & Co. Ltd., to which I shall refer later. The purchase is effective as from July 1, 1933, but, as it was not completed until this year, the whole amount will be charged to capital in the year 1934.

#### New Capital

At a later stage of this meeting, a resolution will be proposed in connection with the powers for raising new capital, which we obtained in the Great Western Railway Act of last session. I have to remind you that we issued £2,500,000 4 per cent. debenture stock in 1933, included in which is £1,000,000 of stock issued more than a year ago, to which Lord Churchill referred at the last annual meeting. The price at which the balance of £1,500,000 was issued was very satisfactory, having regard to the ruling market price at the date when the arrangement was made, and the method adopted was the most economical way of dealing with the placing of the stock. Concerning the resolution to be proposed to-day, the object of securing further capital powers in the Act of last year was, as was explained to you,

to give statutory cover for the overdraft on capital account financed out of our current resources, and, in making the application to Parliament, we thought it advisable to meet all possible requirements for some years ahead.

The powers we have obtained are to raise £8,000,000 in money by the creation and issue of either share or loan capital, or both, as the company may elect, but, inasmuch as our existing resources appear to be sufficient for some time, we do not anticipate the exercise of this authority in the immediate future. Nevertheless, since the sanction of the proprietors is required to the exercise of these capital powers, it is usual to ask them to give the appropriate authority to the directors at the annual meeting of shareholders after the Bill receives the Royal Assent: and that is the object of the proposed resolution. You will see that it is a formal carrying out of what we did last year.

#### Revenue Receipts and Expenditure

Now I turn to the revenue receipts and expenditure. The receipts from railway and ancillary businesses amounted to £28,423,656, or £38,687 less than last year. So far as the railway receipts are concerned, the figures show an increase of £59,299, which I regret to say has been more than offset by a decrease in the docks receipts. In comparing 1933 with 1932, it has to be remembered for consolation that the latter had the benign advantage of being a leap year with an extra day. Further, owing to the incidence of the calendar, there were 53 Sundays in 1933 instead of the usual 52. Thus the loss of two working days in 1933 adversely affected the gross revenue to the extent of about £150,000.

#### Savings in Expenses

The expenditure on railway and ancillary businesses for the year amounted to £23,970,743, a decrease of £459,548 as compared with 1932. Upon this result I am sure you will wish to congratulate the management and staff: and it may be interesting to add some further and more comprehensive figures, which indicate the effort in economy which has been successfully made.

In 1929 the gross receipts from all businesses carried on by the company amounted to £36,184,000, whereas last year they were only £28,423,000, a reduction of £7,761,000 or 21·4 per cent. During the same period, our revenue expenditure was reduced from £29,209,000 to £23,971,000, a reduction of £5,238,000 or 17·9 per cent. In other words, over 67 per cent. of our loss in gross receipts has been made good by reductions in expenditure. Moreover, it can be confidently asseverated that this result has been achieved without in any way impairing the efficiency of the undertaking.

The net receipts from railway and ancillary businesses amounted to £4,452,913, an improvement of £420,861. Railway net receipts show an actual improvement of £448,198, but this was overbalanced by the less favourable results from our other activities.

#### Air Transport

A new item appears in this account, namely, Air Transport. This experimental service caused a loss for the year of £6,526, but it gave us cheaply purchased experience which will be of benefit to us in the future. Miscellaneous net receipts showed a decrease of £35,237, general interest being accountable for a decline of approximately £117,000, the greater part of which is attributable to the cheaper money conditions. In the result, the net revenue for the year amounted to £4,828,561, an increase of £369,158 over 1932.

#### Dividend Policy

Now follows the conclusion at which the Board arrived in consideration of these results. Starting with the figure of net revenue £4,828,561 (supplemented by the carry forward of £42,989), we took into the account a sum of £71,529 being profit on realisation of investments, and we thereafter brought in £1,350,000 from the contingency fund. After meeting the interest on loans and debenture stocks and the

dividends on rent charge, guaranteed and preference stocks, the balance available for dividend on the ordinary stock amounted to £1,328,571. The interim dividend of 3 per cent. absorbed £107,324, leaving £1,221,247, which enables a final dividend to be paid on the ordinary stock of 2½ per cent., making 3 per cent. for the year. £40,679 remains to be carried forward to next year's account. You are probably already aware that the contingency fund was replenished in the course of the year, to the extent approximately of £850,000, from reserves for income tax and other purposes, no longer required, so that the present draft upon it only reduces it by £496,302, as compared with the figure at which it stood in 1932.

As to the reasons which animated the Board in arriving at the decision to recommend the same dividend as last year, some statement may be expected. At the last meeting, my predecessor dealt at length with the principal considerations which had influenced the Board in asking you to endorse their recommendation that a dividend of 3 per cent. on the ordinary stock should be paid, although this could only be done by drawing heavily on our free reserves. You were informed that the Board were satisfied that the financial position of the company was strong enough to justify the belief that, given a reasonably early revival of trade, we should be able to preserve the full trustee status of our prior stocks. (Hear, hear.) Further, you were told that we considered that the ordinary shareholders were entitled in a time of depression to benefit from the large free reserves which had been built up in previous years for use in just such abnormal circumstances. The course which we then took met, I think, with general approval.

#### Improvement in Receipts

The anticipation concerning the trade outlook, which Lord Churchill expressed to you in February last, proved to be correct, although the tangible signs of an improvement did not emerge quite so early in the year as we had hoped. As I have stated, however, there was a welcome increase in our receipts during the latter half of the year, and these encouraging symptoms have continued to exhibit themselves in every succeeding week of the current year.

Further, it ought to be kept in mind that, notwithstanding the bad times recently experienced, we have never departed from our policy of making full provision out of revenue for renewals and other liabilities, so that the adequacy of our large reserves to meet renewals remains entirely unimpaired. The Board therefore felt that there was adequate justification for taking the same course as last year and paying a dividend of 3 per cent. on the ordinary stock. Even after the withdrawal of the necessary sum from the contingency fund, that fund still stands at £1,822,057. (Applause.)

I need hardly say that, before deciding upon this course, the Board gave the most careful consideration to all the material factors, including the effect on the company's financial position of a further withdrawal from reserves, and they believe that the proprietors will share their view that, as the outlook for the current year is more favourable than that which confronted us in 1933, there would be little reason now in reversing the policy upon which we deliberately embarked a year ago.

#### Balance Sheet

Now I turn for a moment to the general balance sheet, which, in this connection, deserves attention. Our cash and investments in Government securities have increased by upwards of £1,000,000. The investments in stocks and shares have increased by approximately £360,000, due to our share in the purchase of Hay's Wharf Cartage Co. Ltd. (including Pickfords), and Carter Paterson & Co. Ltd. Stocks of stores and materials show a decline from £3,147,188 to £2,693,436, amounting to £453,752. This is a satisfactory feature as it releases a corresponding amount of working capital. Outstanding traffic accounts have increased by about £60,000. This is, of course, a natural consequence of increased business and does not represent any extension of

credit or possibility of doubtful debts, which have all been fully provided for.

On the liabilities side of the balance sheet there is an increase in savings bank deposits, which exceed last year's figure by £156,000. Superannuation and provident funds and the reserve for superannuation and pensions have increased by practically £350,000. The whole of our arrangements in connection with superannuation and pensions are on an actuarial basis, and appropriate provision is being made to meet our contractual liabilities under this head. Renewal funds show a combined decrease of £233,000, due principally to incidental renewals carried out in connection with new works and to the renewal of one of our steamboats. Taken as a whole the balance sheet shows a favourable financial position, the reserves amounting in the aggregate to approximately £23½ millions and bearing a satisfactory relation to our total capital expenditure.

#### Increased Facilities

Leaving the accounts, I turn to some general items of interest in the development of our business, and in the first place to the increased facilities which we have offered to travellers on our system. On the passenger side we introduced experimentally on May 1 last cheap summer tickets available by any train at single fare and one-third for the return journey subject to a minimum of 4s. first class and 2s. 6d. third class. These tickets were a very popular innovation, and their introduction resulted in a considerable increase in the number of passengers carried, although other contributing factors were the improvement in trade and the exceptionally fine weather experienced during the summer months. We are satisfied that the experiment justifies an extended trial, and it will be continued throughout the present year.

#### Holiday Season Tickets

Another example of our efforts to popularise rail travel was an extension of holiday season tickets which entitled the holder to a week's unlimited rail travel in the principal holiday districts for an exceptionally favourable rate of payment, and over 30,000 of these tickets were issued during the past summer, the number being practically double that of the previous year. It is proposed to make the facility available from an earlier date this year, namely, from April 1, and to standardise the cost of the tickets at 15s. first class and 10s. third class.

We have also provided increased facilities for hikers and ramblers and a considerable number of educational excursions have been run to works on the company's system with gratifying results. A new feature arranged in conjunction with Messrs. Fry & Sons was the running of a train showroom from their new factory at Summerville for a three months' tour over the whole country. Three of our vehicles were fitted up and equipped by the firm to exhibit the various products which they manufacture; the arrangement is being renewed, and similar show trains for other firms will in all probability be run during the current year.

The receipts from workmen's tickets show an increase of about 2½ per cent. over last year, which may be taken as a definite indication of the improved business outlook.

#### Diesel Railcar

Another innovation which we made was the introduction of a new type of rail-motor-car for local services. This car has been designed to give a speedy service at a low running cost in districts where the traffic is insufficient to justify the use of a train. The car is streamlined and comfortably fitted with ample window accommodation to give a wide range of vision, and there is every indication that it will be extremely popular with the travelling public. You may have seen photographs of this car in the newspapers. It is a very interesting experiment and one which I believe will prove to be entirely successful.

Other improvements which we have effected during the year were the acceleration of our Cornish Riviera and Torbay Expresses, as well as the Cheltenham Flyer, which now performs the journey from Swindon to London—a distance of 77½ miles—in 65 minutes, the fastest start-to-stop steam

train schedule in the whole world. We have also accelerated a number of our cross country and other trains, and hope to effect further improvements during the current year.

#### **Freight Traffic Development**

Concurrently with our efforts to secure additional passenger train traffic we have made similar endeavours to increase our carryings of merchandise and minerals. During the past year we received numerous inquiries for sites on the company's system mainly in the London area, and 65 new businesses have been established on our line. There has also been a considerable demand for private siding accommodation and 19 new sidings were provided during the year. In addition, 10 private sidings which had been closed for a considerable period were re-opened, from which a substantial increase in traffic is anticipated.

The use of containers for the conveyance of merchandise has been extended, and our receipts from this traffic show an increase of over £30,000 or 18 per cent. over the previous year. Our scheme of registered transits which, for a fee of 2s. 6d. ensures special arrangements being made for the delivery of consignments within a specified time, has proved to be of great assistance to our traders. The number of consignments dealt with has more than doubled during the past year, and I think it is a tribute to the soundness of the scheme that it has now been adopted by the other railway companies.

We have extended our country lorry services and the number of firms making use of our railhead distribution facilities is steadily increasing. Many new exceptional rates were put into operation in order to secure additional traffic and a considerable amount of business previously lost to our road competitors was regained. (Applause.) On the operating side, there has been a further speeding up of our freight train services, and the net ton miles worked per train hour constituted a record. The cost of handling merchandise at our goods stations has been further reduced, the cost per ton last year being the lowest attained for many years.

#### **Dock Traffic**

With regard to our ancillary businesses, the heavy decrease which has taken place in our dock receipts during recent years is causing us considerable anxiety. The shipments of coal from our South Wales ports have declined from 29,985,000 tons in 1929 to 20,249,000 tons last year, a decrease of 9,736,000 tons or 32 per cent. Compared with 1913, the decrease is, of course, much greater, being equal to 48 per cent. Although as the result of the Ottawa Agreement our shipments of anthracite coal to Canada show the satisfactory increase of 669,000 tons compared with 1929, our coal shipments to France during the same period have declined by 1,920,000 tons; to Italy by 1,039,000 tons; to Brazil by 1,016,000 tons; to the Argentine Republic by 921,000 tons; and to Egypt by 776,000 tons. There have also been losses on a smaller scale to many other countries. While it is recognised that our exports have been adversely affected by the world depression and the substitution of oil fuel for coal, there is no doubt that they have also suffered severely by the operation of quotas, international trade agreements and currency restrictions, which are matters that can only be dealt with by the Government. Incidentally it ought to be pointed out—I think this is very little understood—that trade agreements favourable to one part of the country may have embarrassing repercussions on other districts. For example, I think it is certain that the trade agreements made by the Government with Scandinavian countries, whereby the coal trade of the North East Coast of England has benefited, have adversely affected South Wales by driving Polish coal into Mediterranean markets in competition with Welsh coal. There are, however, certain factors in operation which should favourably affect the internal coal consumption in South Wales.

#### **Iron and Steel Trade**

The iron and steel trade, which is the sister of the coal industry, shows distinct signs of improvement. Our trans-

portation of general merchandise and minerals in 1933 was 528,000 tons in excess of the previous year, due largely to the improvement which has taken place in the iron and steel industry. The quantity of pig iron and steel produced in South Wales and Monmouthshire during the past year was 519,600 tons, or 30 per cent. in excess of 1932, and as each ton of steel produced means 6 or 7 tons of traffic to the railway it is a matter of considerable importance to us that the steel industry should be prosperous. The British (Guest Keen and Baldwins) Iron & Steel Company have recently announced that, provided they can obtain an assurance that the present import duty will be continued, they are ready to proceed with their £2,000,000 reconstruction scheme at Cardiff, from which we anticipate a large increase in traffic. In view of the depressed state of industry in South Wales, it is hoped that it will be found possible to come to an early arrangement which will enable the scheme to be put in hand without delay.

#### **Road and Rail**

Now I come to the interesting topic of the road and rail. As the outcome of the recommendations of the Committee consisting of representatives of road and rail transport which was presided over by Sir Arthur Salter, an Act was passed at the end of last year containing a number of provisions of prime importance to the railways of Great Britain. One of its main features is to place the licensing of goods vehicles on a somewhat similar footing to that which the Road Traffic Act, 1930, applied to passenger carrying vehicles.

The provisions of the Act go a considerable way to mitigate some of the handicaps suffered by the railway companies in competition with transport by road. Moreover, the Act gives some relief from the restrictions to which railway companies were previously subjected in the matter of charging powers.

#### **Agreed Charges**

The companies are given the right—subject to the assent of the Railway Rates Tribunal—to make agreed charges with a trader for the carriage of his merchandise. This greater measure of freedom in making arrangements with traders for the conveyance of their goods will be of great assistance in enabling rail transport to be used to the best advantage, whilst at the same time the position of competing traders is safeguarded by a right of appeal to the Railway Rates Tribunal. The passing of the Act has, we believe, created an increased interest in rail facilities on the part of traders.

As a further step towards the fairer working of road and rail transport, provision is made for the setting up by the Minister of Transport of a Transport Advisory Council consisting of representatives of the various interests connected with transport for the purpose of advising the Minister on transport questions generally. This council, on which the railway companies are, of course, represented, has now been formed, and our General Manager is one of its members.

The Finance Act of last year imposed an increased scale of licence duties on road motor vehicles of the heavier type. Although the increase does not go so far as was proposed by the Salter Committee, the additional tax will have the effect of diminishing the undue advantage which the road haulier has hitherto enjoyed over his railway competitor, who is subjected to many burdens which the public carrier of goods by road has hitherto escaped.

#### **Carter Paterson and Pickfords**

During the past year the four main line railway companies have acquired the controlling interest in the businesses of Carter Paterson & Co. Ltd. and Hay's Wharf Cartage Co. Ltd. (including Pickfords Limited), both of whom deal with the collection and delivery of goods and parcels on a large scale. It was felt that there was scope for considerable economy if the services of the two firms could be co-ordinated with those of the railway companies, and as the result of the negotiations which have taken place, the share capital of these firms has been purchased in equal proportions by the main line railway companies on fair and

reasonable terms. Since the acquisition the officers of the companies have been in close co-operation with the object of developing the respective services to the greatest advantage of all concerned whilst at the same time avoiding unnecessary duplication. We are satisfied that the arrangement will be beneficial all round. This instance, ladies and gentlemen, affords an example of the kind of circumstances in which all the railway companies can co-operate to their mutual benefit through the elimination of unnecessary competition and to the advantage of the public by the provision of more efficient service. While there is a definite limit in my view to the extent to which combination between the railway companies can usefully go, many occasions are found in practice which are suitable to co-ordinated working. In recent times, advantage has been taken of such opportunities whenever they have occurred.

#### **London Passenger Transport**

Now I will give you some examples of what I think is a very important matter. At the suggestion of the main line companies provision was made under the London Passenger Transport Act, 1933, for co-ordinating all passenger transport services within the London Area, and for pooling the whole of the receipts of the Transport Board and of the main line railway companies from passenger journeys local to the London Traffic Area. Discussions are now taking place with the object of settling the details of the pooling scheme for submission to the Arbitration Tribunal.

#### **Pooling Arrangements**

Again, pooling arrangements, to which the Minister of Transport gave his consent during the year, have been made between the London Midland & Scottish, London & North Eastern and Great Western Companies covering receipts from competitive traffic, other than mails. The pool is operative as from January 1, 1933, and, while some time must elapse before the full benefit of the arrangement will materialise, economies have already been made in many directions and a number of district agencies located in territories of other companies have been closed and the staff withdrawn. Good progress has been made in setting up co-ordinated working at points which hitherto have been regarded as centres of intense inter-company competition. Passengers are appreciative of the extended system of inter-availability of tickets which was introduced on May 1 last, permitting return journeys to be made by any of the recognised routes of the three companies. That, ladies and gentlemen, I think you will agree, is all to the good. (Applause.)

#### **Air Services**

A more recent and more dramatic development of this spirit of combined operation is in connection with a projected air service. In this sphere of activity the Great Western has done some experimental work, as you learned from an earlier paragraph of my speech. Since we obtained Parliamentary powers in 1929 to operate air transport services, we have been carefully watching the development of the aeroplane as a means of transport, and the steps taken by municipal and other authorities to provide terminal facilities, which form such an essential part of this mode of transport. Considerable progress has been made, but much remains to be done before the aeroplane becomes a travel unit in this country capable of being operated on an economic basis. We recognise that some time may still have to elapse before this latter state of affairs is achieved, but the steady augmentation in the number of passengers travelling by air, the great development in speed of aircraft and the growth in the number of companies associating themselves with this movement, are definite signs of progress and "air-mindedness," which we would not ignore if we could.

We felt, therefore, that the time had arrived for us to test the public demand for air travel facilities, and we accordingly inaugurated the route between Birmingham, Cardiff, Torquay and Plymouth in conjunction with Imperial Airways Limited. It was in the nature of an experiment, but it has afforded us very useful data for determining

future policy. One of the principal factors which influenced us in selecting the route was that it enabled travellers between Birmingham, South Wales and Devonshire to effect a considerable saving of time. But the high cost of providing adequate terminal facilities entailed a heavy loss on the company, and unless a greater measure of co-operation in this respect is accorded by local interests, those who assume the responsibility and bear the expense of running the machines may be discouraged from extending the service.

#### **Agreement with Imperial Airways**

There is no doubt in our minds that the solution of the problem of the proper sphere of the aeroplane in relation to the other transport systems of this country lies in taking into view the British Isles as a whole and not considering merely the comparatively narrow area of each individual railway company's territory. As you will have seen from the recent announcement in the press, the four main line railway companies have entered into an agreement with Imperial Airways Limited for the formation of an independent company, with a nominal capital of £50,000 for the purpose of developing services in the British Isles and linking up with the existing services operated by Imperial Airways Limited. Its functions will be to provide and operate such machines as the companies may require for any service which they desire to provide, either individually or jointly.

Under the proposed arrangement I anticipate that you will find individual railway companies operating services on particular routes peculiar to their own spheres of activity and in other instances one or more companies combining to develop a route in which they are jointly interested. It is easy to imagine several such routes operated by the railway companies. It is a feature of these agreements that the railway companies will have the advantage of all the experience accumulated by Imperial Airways Limited and the benefit of their advice and skill in acquiring the necessary machines. Although a narrow island such as ours does not afford great scope for extended air services we shall hope in the course of time to provide the public with the greatest facilities for transport by air that the conditions permit.

#### **Expenditure on Developments**

The outline of the plans which I have sketched will, I hope, suggest to you that the railway administrations of this country are not only making themselves more adequate to their present tasks but are also looking well ahead to the necessities of the future. On the Great Western system we are steadily and systematically putting ourselves in a better position to increase our earning power. By taking advantage of the Development (Loan Guarantees and Grants) Act, 1929, we have been able to increase the efficiency of our undertaking on terms which ought to show a lucrative yield on any normal revival of trade. We have now completed thirty-one of the thirty-five separate schemes which were approved by the Government under the Act, and satisfactory progress is being made with the remaining four. The works at Paddington, Bristol and Cardiff will be finished during the current year, and the final stage of the programme for equipping all our docks in South Wales with appliances capable of dealing with 20-ton wagons will be completed in 1935.

#### **Expediting Traffic**

The capital expenditure involved in the whole of these Government schemes is £5,395,700, of which about £4,421,604 had been spent up to December 31 last. As you have been told previously, the financial assistance which His Majesty's Government have agreed to grant to us over a maximum period of fifteen years goes a long way towards meeting the interest charges on the expenditure. There is abundant evidence that the new facilities already provided have been of great assistance in expediting the working of traffic during busy periods, and the benefit derived from them will be increasingly felt as traffic develops. The pro-

vision of additional warehouse accommodation at many centres has been much appreciated by traders and has resulted in a substantial increase in our goods traffic. At Paddington and elsewhere, considerable economy has been effected not only in working the traffic but also by concentrating staff formerly located in scattered offices. There can be no doubt that, when we have completed our programme of development-works, our capacity to handle all traffic offered to us will be considerably higher than it has ever been before.

#### 20-ton Wagons

A scheme of rather a special character which we are carrying out under the Development Act, 1929, is for the construction of 5,000 20-ton wagons to be let out on hire to colliery companies for a definite period of ten years with an option to purchase at a nominal figure at the end of the hire period. As you will see from the report, 4,075 of these wagons have now been constructed and are in use by the colliery companies. It is generally recognised that the 20-ton wagon is the most suitable and economical type of vehicle for dealing with shipment of coal, and, as it was a condition of the Government grant that the colliery companies should break up two obsolete 10-ton wagons for each 20-ton wagon which is provided, the scheme has enabled considerable progress to be made in the direction of the modernising of stock, thereby reducing the costs of transporting and shipping coal.

We recognise that the cost of handling must be reduced to the lowest possible level in order to enable colliery companies to compete in foreign markets, but in our view this can only be brought about by the general adoption of 20-ton wagons for shipment coal. In the present financial state of the coal industry few colliery companies are in a position to embark upon the heavy expenditure which is necessary to modernise their wagon stock, and unless the Government can be induced to afford them further financial assistance in order to increase the number of 20-ton wagons now available I am afraid considerable time must elapse before our export coal can be dealt with in the most efficient and economical manner.

#### Modern Dock Appliances

So far as the company is concerned, we have, with Government assistance, equipped all our docks with sufficient modern appliances to enable the whole of the export trade to be shipped from 20-ton wagons, and where such wagons are used we allow rebates from our rail and dock charges equivalent to roughly 10 per cent. of the total cost of transporting and shipping the coal. We have provided altogether 6,000 20-ton wagons for use by the colliery companies, and each of our docks has been equipped with anti-breakage appliances of the most modern type, and new appliances for digging out washed duff from the wagons at a reduced cost to the traders.

I have touched, ladies and gentlemen, on the questions of outstanding interest with which we have been concerned during the year, although there are other important topics, such as that of the National Wages Board, now under negotiation, and our Irish traffic, which I have been forced to omit. My survey has embraced many of the items comprised in the programme of the British Railway Stockholders' Union, who have played a conspicuous part in enlightening the public on railway subjects and for whose co-operation we are grateful. But I am sure, in spite of the extreme length of my speech, that you will feel that I have not done my duty if I make no reference to the future.

#### Future Prospects

What view are we to take of it? Is the turn for the better which disclosed itself in 1933 likely to continue in the current year? It may be rash to make any prediction, but perhaps we shall not be unduly audacious if we adventure timidly and tentatively into a sphere in which these cautious guardian angels of the country's fortunes—the chairmen of the great banks—have not "feared to tread." A study of their recent speeches at the annual

meetings of their shareholders will show that the heads of the joint stock banks have stated it as their opinion that the gradual improvement which has taken place in the last two years in this country is based on stable foundations and is likely, so far as we can see, to continue. Our railway receipts for the first two months of the year 1934 seem to afford justification for this view. On the published figures down to last week, the receipts of the railways as a whole were greater than those of 1933 by £1,200,000. The statistics of trade and industry are also encouraging and point in the same direction. The country has had the advantage of cheap money for two years, and there is a plethora of funds to be employed in the development of our industries as soon as a full degree of confidence animates the breasts of the investing public. Personally, I venture to think that, with the declining yield of investment in high-class securities, money will gradually be forced out of this rarefied sphere into industrial stocks, with resulting benefit to the trade of the country. This process is, to some extent, already in operation, and I believe that it will be accelerated when the Government proposals with regard to slum clearances and a larger house-building programme get into their swing. As these movements increase, the railway position ought to get better. But, lest we be too hopeful, there are certain countervailing factors which we must bear in mind as railway shareholders. Some of our costs must go up. While many of the economies which we have made during the period of depression are of a permanent character, others were the temporary result of decreased traffics. When traffics are, as we hope, up again, our expenditure will necessarily increase. You will not begrudge it because it will get its return. Further, with the revival of business, we must anticipate, as I think, an appreciable increase in the price of the raw materials which we require to purchase for the conduct of our operations. Again, as proprietors of a railway whose fortunes are to a considerable extent involved in carrying coals from the Welsh coalfields and shipping them from our docks, we must keep before our minds the fact that coal seems to be the slowest of all the industries to revive and that many long-sighted people foresee a permanent diminution in the amount of trade that used to be done in connection with our coal. I am one of those who expect in the future some restoration of confidence in the coal industry through the development of better devices for its use; but such a development will necessarily take some time. We must, therefore, not pitch our estimates for the coming year too high. We must, indeed, take a cautious and modest attitude towards our prospects. Given, however, a freedom from strife amongst the nations of the world and some advance towards restoration in America, we may, I think, go forward with more hope than we have had in our hearts for some years past.

#### G.W.R. Centenary

On the Great Western we have a special cause for inspired energy. Next year our company will be one hundred years old. During the century of its existence it has passed triumphantly through many periods of difficulty, and stands to-day with a highly honourable place amongst the great systems of transport of the world. (Hear, hear, and applause.) It enjoys a warm corner, as I believe, in the breasts of all who work for it. There is a spirit of willing co-operation amongst all ranks and grades of our staff which should ensure success under any reasonable conditions. To the entire organisation both of officers and men in your service, I tender, on your behalf and on my own, our warm thanks. Throughout these times of difficulty they have displayed a fidelity and resource which have earned our admiration and gratitude; and, with their support and continued effort, we have adequate reason for hoping that we shall celebrate our hundredth birthday in a position of renewed strength, greater than was ever imagined by those who laid the foundation of our fortunes in the far past.

I beg to move: "That the report of the directors and statement of accounts for the year ended December 31, 1933, be received and adopted." I shall ask the Deputy-Chairman

to second that, and thereafter an opportunity for questions and comments will arise.

The Rt. Hon. Lord Palmer (Deputy-Chairman): Mr. Chairman, ladies and gentlemen, I have much pleasure in seconding that.

#### Shareholders' Remarks

Mr. John Hedges thought the shareholders were very fortunate in having Sir Robert Horne elected as Chairman of the company. He was a Member of Parliament and therefore could look after the interests of the railways in the House of Commons. He was also associated with several commercial businesses as Chairman and Director; he had also been a Chancellor of the Exchequer, so he ought to be very well up in commercial life and also in finance. What he had to do in the future was to work in conjunction with the management and others and keep down expenditure, so as to ensure a dividend for the shareholders, and it was only by economy and carefulness that that would be secured.

Mr. Ashley Brown wished to associate the Stockholders' Union with everything that had been said on the subject of the late Chairman. Lord Churchill seemed to personify that spirit of general decency and fair play which they had come to associate with the company itself, and very naturally in the circumstances they missed him on this occasion. Though their first feeling was one of regret, their next must be one of satisfaction. It was not every great company that could follow a Lord Churchill with a Sir Robert Horne. When that appointment was announced the union had to consider very carefully what action they should take, as they had an objection on principle to what he might term the habit of multiple directors; but they realised that criticisms of the appointment were very largely misinformed, and also that there was no one who could bring to this company the same prestige, the same knowledge and the same ability as Sir Robert Horne. He was not sure that this company was entitled to congratulate itself over much on having one diesel coach running on the main line. He believed the diesel coach really embodied the solution to the branch line traffic problem. The diesel programme of the French railways for the next year included 77 for the P.L.M., 30 for the Paris-Orléans, 25 for the Nord, 20 for the Midi, 16 for the Alsace-Lorraine, 70 for the State Railways, and 20 for the Est. He thought this company ought to get on rather faster with this matter of the diesel car.

Mr. Anthony referred, as he had done at previous meetings, to the canals, where they were dropping money every year. Last year the Chairman had said that the company would proceed to acquire powers to enable them to get rid of those obsolete waterways, and he would like to know what was the present position with regard to this matter. He also criticised the type of horse used in collection and delivery work in the Cardiff area and suggested that the perching type should be substituted.

Mr. W. H. Robson recommended that there should be an average cut, not a flat one, of 10 per cent. in the wages and salaries of railway employees.

Mr. Harris thought a saving might be effected by sending out to shareholders abridged summaries of the report and accounts amounting to 4 pages, as was the practice with the other railway companies. As a stationmaster in South Wales, who, for reasons of economy, was now in charge of three stations, he suggested that economy would also result from more merging of the supervision in South Wales. He also suggested the possibility of a new source of revenue, if owners of private cars were able to obtain cover notes and certificates of insurance at the railway booking offices.

Mr. Vaughan emphatically disagreed with Mr. Anthony's views on the Great Western Railway horses at Cardiff, which he thought were a credit to the company. The British horse was a better horse than the perching.

Mr. Greig called attention to the discrepancy between the revenue from first class and from third class passengers, and thought that a reduction of 25 to 30 per cent. in the first class fare might encourage more passengers to travel first class, which would mean increased revenue therefrom.

He also noticed that the profit from steamboats was

£3,616, which represented 1 per cent. only of the gross receipts. The L.M.S.R. return on the same thing was 14½ per cent. Of the renewals of locomotives and wagons all had been built in the company's shops, not a single one had been placed out amongst contractors. He thought that if the railway companies could see their way to give their orders out amongst the contractors, it would come back to them in another way. It would help the contractor to reduce his overheads and put him into a better position regarding his overseas trade, and the railways would thereby benefit by increased traffic.

Mr. Murray strongly opposed the suggestion of making further cuts in salaries and wages. It would be a retrograde step, and against all the high traditions of the company. The sooner they could begin to give back something of what had been taken away from salaries and wages, the better it would be for the prosperity of the company generally and the better spending power the staff would have.

Miss Salamon hoped there would not be reductions in rolling stock expenses, because she had seen the effect of that in the case of other companies. She hoped now that Pickfords and Carter Patersons had been taken over, that their rates would be reduced.

Mr. Rashleigh proposed that the company, when supplying coal to their staff at Chippenham at a cheap rate, should deliver it themselves from Swindon 16 miles away, instead of getting the work done by a coal merchant.

Mr. Collier said it was his experience that the supply of cartage vehicles was insufficient and thought the number of motor vehicles should be increased.

#### Chairman's Reply

The Chairman: Now, ladies and gentlemen, I should like in the first place to express my thanks to the audience for the kindness of their reception, and I can only say that I shall do my best to deserve the kind things which have been said about me. We have had a large number of interesting questions asked, and may I say with perfect sincerity that we are very glad and eager to hear exactly what the shareholders are thinking about and to get suggestions. Although I think ours is very good, no management is entirely perfect, and there may be points which are worthy of our consideration; and I can promise you that everything which has been put before us to-day will be carefully considered, and in any instance in which we find the suggestions are beneficial, we shall be delighted to take the opportunity of dealing with them.

Mr. Ashley Brown was rather afraid that we were going to take too much credit to ourselves about the diesel coach. At any rate, I can say this about the coach that, even if it has come a little late, at least it is a very good one. We are trying it out at present on the line where the makers of the coach were most anxious to see it operated, in order to be able to estimate its efficacy; and Mr. Ashley Brown can be assured that if it proves to be as good as we hope it is going to be, it will not be the only diesel coach we shall have operating in the future.

With regard to the question of canals, I do not think that the Chairman last year gave the distinct assurance which Mr. Anthony quoted. I remember very well what Lord Churchill said, and I remember his making, either at the last meeting or the one before, a statement that he would be very glad to give anybody our canals who would take them with the liabilities. Our difficulty is that there are a lot of statutory and other obligations which have to be fulfilled and, immediately you take steps with the object of obtaining relief from these we find that it will probably cost us more to get rid of the canals than by maintaining them as at present. That is our problem, but if Mr. Anthony will take over any of the canals with its liabilities, he is welcome to it.

I was glad of Mr. Vaughan's assistance in replying to Mr. Anthony's criticisms on our horses. However, Mr. Vaughan answered Mr. Anthony with equal confidence, and I can only suppose that there are two sides to this story. At any rate, I am very glad to come down on the side of saying that where a British horse is as good as a foreign horse, I would rather buy the British one.

As regards Mr. Robson's remarks and also those of Mr.

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Murray, I am not going to enter into any question of the wages of the staff at the present time; I think it would be a very inappropriate moment to do so in view of the position of the negotiations now taking place between the representatives of the managements and of the trade unions.

Mr. Harris raised a point as to the size of the annual report. I admit that the document is bulky, but we are compelled by statute to print the full accounts and returns, although we are not compelled to circulate the complete document to all the shareholders. The main expense, however, is in the setting up of the type, and the estimated saving by sending out an abbreviated report would be something like £250. You may say that that is worth saving, and probably that is true, but we have always taken the view on this railway that the shareholders should have full knowledge of the company's results, particularly when we ask for proxies, and so we face the slight extra expense. Another point which he made was with regard to the centralisation of staff. That is a matter which shall certainly be inquired into.

Mr. Greig put three important points. First, with regard to the price of first class tickets, and he inquired whether it would not be possible to make a reduction in first class fares and thus increase traffic. That is a matter which has been under consideration for some time. I am not now going to indicate where my personal predilection lies, because the whole matter is now before a Committee of all the railways, as it is essential that we should act together. Then Mr. Greig asked a question about the steamboats. Our revenues have suffered in the present year partly from the docks and partly from the steamboats; and as regards the latter it is the diminution of the traffic to and from Ireland which is mainly responsible for the drop in revenue from that source.

Now, as to expenditure on locomotives and wagons, Mr. Greig urged that as we depend upon the success of the people whose business lies on our system, we ought to encourage them by giving them orders for such stock. I can assure Mr. Greig that in fact we do follow the principle that he has enunciated. We of course do a good deal of work in our own shops, but we also place a very considerable number of orders outside, e.g., all the 20-ton wagons, about which I have told you, were built by private firms, and about two years ago we placed orders outside our works for 200 locomotives.

Miss Salomon was good enough to tell us that she was making her maiden speech, and I listened to it very carefully. I am rather a connoisseur of maiden speeches, because I have listened to many, and I would venture to say that she has made a very successful start.

A question was raised by Mr. Rashleigh about the delivery of coal to the company's servants. The reason why we deliver the coal is because we desire to give the staff the opportunity to buy it at exactly what it costs us; we do not seek to make any profit out of it, and we make the deliveries in the way which we find the most convenient and which we believe to be the least expensive, but we will investigate his suggestions.

Now, ladies and gentlemen, those, I think, are most of the points which were raised, and if you will now allow me I will put the resolution in favour of the report to the meeting. Will those who are in favour of agreeing to the report hold up their hands? . . . Those against? . . . I declare the motion carried unanimously.

Now, ladies and gentlemen, I have to propose:

"That dividends be paid for the half-year ended December 31, 1933, of £2 10s. per cent. on the consolidated guaranteed stock, £2 10s. per cent. on the consolidated preference stock and £2 10s. per cent. on the five per cent. redeemable preference stock (1950)."

That a dividend of £2 15s. per cent. for the same half-year be declared on the consolidated ordinary stock, making with the interim dividend of 5s. per cent. paid for the half-year ended June 30 last, £3 per cent. for the year.

That such dividends be paid on and after the 6th proximo to the proprietors who were registered in the books of the company when balances were struck on the 24th ultimo."

The Rt. Hon. Lord Palmer: I second that.

(The resolution was put to the meeting and carried unanimously.)

The Chairman: I will ask Mr. Roxburgh to move the next resolution.

Mr. Roxburgh: Mr. Chairman, ladies and gentlemen, I move: "That the following Directors now retiring by rotation be and they are hereby re-elected:—Sir John Cadman, G.C.M.G.; Mr. Lawrence Currie; the Rt. Hon. Lord Davies; Mr. Harold Macmillan, M.P.; the Rt. Hon. Lord Mildmay of Flete; the Rt. Hon. the Earl of Mount Edgcumbe; Sir H. L. Watkin Williams-Wynn, Bt., C.B."

Lt. Commander Inglefield: I have much pleasure in seconding the re-election of the Directors named by Mr. Roxburgh.

The Chairman: Is that agreed?

(The resolution was put to the meeting and carried unanimously.)

Colonel Kelly: Mr. Chairman, ladies and gentlemen, I beg to move: "That the following gentlemen be and they are hereby appointed members of the Audit Committee for the ensuing year:—Sir George Lewis Barstow, K.C.B., 36, Sussex Gardens, W.2; Mr. John Hedges, Ditton Mount, Ditton Court Road, Westcliff-on-Sea; Sir W. Edgar Horne, Bt., 110, Mount Street, W.1; Mr. Reginald J. R. Loxdale, Castle Hill, Llanilar, Aberystwyth; the Rt. Hon. Viscount Tredegar, C.B.E., Tredegar Park, Newport, Mon."

Lt. Commander Inglefield: I have much pleasure in seconding the proposal for re-election of the Audit Committee.

(The resolution was put to the meeting and carried unanimously.)

The Chairman: Now, ladies and gentlemen, in pursuance of what I announced to you in the course of my speech with regard to the raising of new capital, I beg to move: "That the directors be and they are hereby authorised to exercise as and when they may deem necessary, the additional powers in relation to capital conferred upon the company by the Great Western Railway Act, 1933, as in that Act provided." I will ask Lord Palmer to second that.

The Rt. Hon. Lord Palmer: I have much pleasure in seconding that.

(The resolution was put to the meeting and carried unanimously.)

Mr. Roxburgh: Ladies and gentlemen, our learned Chairman is not an iconoclast, and I am quite sure he will agree with me that an ancient custom of the company should not be allowed to fall into desuetude. Our custom has been for years, possibly from the formation of the company one hundred years ago bar one, that we have at the conclusion of the general meeting passed a vote of thanks to the Chairman and the Board of Directors; and it affords me very considerable pleasure to-day to move a very hearty vote of thanks to the Chairman and the Board of Directors, as well as to the officers and staff, for the results that they have achieved for us. You all know the unique position which this company alone of the four group railways holds in that they are the only one whose stock stands with full trustee status. May I add a personal wish, one in which I am sure you will all join when you know it: I wish the learned Chairman many happy returns of the day, for this day happens to be the anniversary of his birth.

Colonel Hilder: In seconding this resolution, I only want to say that you have seen him, you have heard him, now trust him.

The Chairman: Ladies and gentlemen, on behalf of the officers and staff of the company, as well as on my own behalf and on behalf of the other directors, my colleagues, I venture to express to you my great gratitude for the resolution which has just been so heartily proposed and adopted by the audience. It is quite true that I have added a year to my life by the day at which we have now arrived; it is my birthday, and you have given me the best birthday present you could possibly have given me. I feel encouraged and reassured by the welcome of this audience, and I look forward with great pleasure to the many meetings which I hope we shall have in the future.

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**The Pennsylvania Railroad Calendar.**—"The New Day" is the title given to the illustration on this year's handsome wall calendar of the Pennsylvania Railroad. Measuring 17½ in. by 23 in., this striking picture, which is printed in natural colours, depicts an electric-driven express passenger train.

## GREAT NORTHERN RAILWAY (IRELAND)

The annual general meeting of the Great Northern Railway (Ireland) was held at Belfast on Wednesday, February 28, Sir Lingard Goulding, Bart. (Deputy Chairman), presiding in the absence through illness of Sir George S. Clark, Bart. (Chairman of the company).

The Chairman, in moving the adoption of the report and accounts, said shareholders were aware of the disappointing results of the past year's operations, the principal causes for which were mentioned in the report. Owing to the strike, which seriously affected the working for the first six months, comparisons with last year's figures were of little value.

They still had to face road competition which, even though much of it was conducted under irregular and unsatisfactory conditions, particularly in respect of labour, could not be economic to the undertakers. The door to door service which they were providing by motor lorries in the districts around the different rail-head stations was conducted under satisfactory labour conditions and with careful regard not only to the public using the highways but to all the relevant Government regulations.

Against the large falling off in revenue, expenditure had been reduced by £271,688 (24 per cent.). He thought they would agree that this substantial saving was a highly commendable achievement when regard was had to the costs incidental to a strike and to the fact that the directors still continued to make the necessary provisions for depreciation of the permanent way, rolling stock and other railway plant. It was true that the fall in revenue exceeded the saving in expenditure, but, having regard to all the circumstances, it would have been impossible to balance these two items without doing irreparable injury to the business which they had retained. Apart from a large saving in salaries and wages, there was one item which he should mention—they spent £37,621 less on locomotive coal during last year in comparison with 1932.

The unfortunate experience of the past year might be attributed to two main causes, the strike and the economic war. The former arose out of the majority finding of the Irish Railways Wages Board with which certain of the trade unions refused to comply. The direct cost of the stoppage to the company was estimated at not less than £100,000, while not the least regrettable result was derailment of their trains at Dromiskin and Omagh, resulting in the loss of two employees' lives. As was unanimously agreed at the last annual meeting, it was impossible to concede the unions' demands, and it was deplorable that a finding arrived at after full examination of the position should have subsequently been rejected with such disastrous consequences to all concerned. The directors, however, did their utmost to recover from the damage thus done to the company's business, and the result might be appreciated from the position for the second six months, when the deficit in net income for the first six months of £84,994 was reduced by £50,310, thus reducing the loss for the complete twelve months to £34,684—these figures, of course, did not take into account the liability of the company for fixed charges, interest on debenture and guaranteed stocks amounting to £150,635. Unfortunately, the improvement in the second part of the year had not been maintained in the current year to date, traffics proving very difficult to obtain.

The economic war had affected the company most seriously. Depending as they did to a great extent upon cross-border trade, the increasing number of tariffs and restrictions imposed on that trade had greatly diminished their most remunerative traffic, without enabling them to make an equivalent reduction in overhead charges. At the same time the company itself had had to find substantial sums in payment of duties on stores and material.

The loss of traffic due to the economic war was estimated at between £150,000 and £200,000 per annum, representing about one-sixth of their traffic receipts. The greater part of the loss had occurred in carryings of general merchandise, consisting mainly of grain, flour, drapery and groceries. As

an instance, he might mention that in the case of one firm alone traffic had been lost to the extent of £4,500 per annum. The present position in the live stock trade would, he feared, also have a serious effect on their revenue.

It was no exaggeration to say that this company must be among the worst sufferers from the drastic economic changes initiated during the past two years. Unfortunately, the new industries so far set up in the Free State had not brought such new traffic to the company's system as would nearly compensate them for the virtual blockade imposed on cross-border traffic.

In the altered circumstances it was vital to the company's existence that wasteful competition for the traffic available should be eliminated. Competition of that description by road unfortunately still continued. They were hopeful, however, that with the assistance of the Road Transport Act of 1933 the position in the Free State would substantially improve, and that the acquisition of passenger services under the Act would tend to more economical working. Nothing could yet be said as to the result of the provisions of the Act which applied to goods services since that portion of the Act was not due to come into operation until February 1, but it was earnestly to be hoped that it would not be long before it was given full practical effect.

As shareholders were aware, Northern Ireland had not yet helped in legislation as had been done in England and the Free State, but he trusted that Government here would at an early date adopt measures which, while being fair to all parties, would successfully relieve the dire distress of the railway companies in their area. When he mentioned that of the decline in receipts which had been encountered since the strike it was estimated that some 70 per cent. was attributable to the Northern portion of their line, they would appreciate that he was not underestimating the emergency.

Their officials were continuously engaged in an intensive canvass for traffic. New and more economical methods of handling and conveyance were under trial. Experiments were in progress with devices for adapting road omnibuses to the rail. The directors had studied every economy possible and had reduced expenditure in every way that they considered prudent. Shareholders would recognise the seriousness of the problems caused by the frequent and far-reaching economic changes that were being enforced in Ireland, and by the dislocation of traffic which such changes must inevitably bring to a railway system situated as theirs was. Every helpful contribution by any shareholder towards the solution of these problems, which far exceeded in gravity any minor matters of complaint or criticism, would be heartily welcomed; and he would urge every individual shareholder to lose no opportunity of securing new business for the line and thus help to meet the burden of their necessary expenditure.

They would expect him to make some remarks as to the outlook. He had pointed out the heavy blows which sudden and drastic changes in the course of commerce and industry must strike a railway such as theirs, and the difficulty of adapting so relatively cumbersome a mechanism as a railway system to such changes must not be under-rated. Where long haul traffic was interrupted as theirs had been and short haul traffic was substituted north and south of the border, it was plain that road competition became an increasing menace to their stability. They must look to the Governments to realise the position and, if they wished to retain railways in the country, to give them that preferential position as transport undertakings which was vital to their existence in the present conditions. If that position was secured the public would be able to rely on the provision of adequate services at reasonable rates. He believed that responsible Ministers did now realise the position, and he would emphasise again that their aid was necessary before they could restore that Railway, if not at once to its former prosperity, at least to a state of healthy convalescence after the shocks they had suffered. But time pressed urgently.

At the present moment the facts and figures which he had given, and the results of working up to date this year, during which their receipts had not yet reached the level of their expenditure, necessitated a serious view being taken of the company's position: A position in which every means of conserving their resources until conditions improved would be sought by the Directors. He did not hesitate to say that

since receipts, as he had stated, continued to fall short of expenditure, the maintenance of their services for any but a comparatively short period might depend on the prompt adoption of effective legislation in the North, and on the full implementing of the legislation already passed in the Free State.

The resolution was agreed to.

## MERSEY RAILWAY COMPANY

The annual general meeting of the Mersey Railway Company was held on Friday, February 23, at Winchester House, Old Broad Street, E.C.2, Mr. John Waddell, J.P. (Chairman of the company) presiding.

The Secretary (Mr. Joshua Shaw) read the notice convening the meeting.

The Chairman, in moving the adoption of the report and accounts, said that after making due provision for the renewal funds, amounting to £6,000—the same as last year—the net revenue for the year as shown in Account No. 9 was £82,889, as compared with £82,710 for 1932. To this was added the amount brought forward from last year's account £4,203, making a total of £87,092. After deducting from this sum the interest on the debenture stocks £55,057, the appropriation to the general reserve fund £1,000, and the dividend on the preference stock £19,472, making altogether £75,529, there remained a balance available for payment of dividend on the ordinary stock of £11,563, as compared with £11,264 for 1932, an increase of £299. Of this sum the Board had recommended that £7,061 6s. 3d. be applied in payment of a dividend on the ordinary stock of  $\frac{1}{2}$  per cent., and that the balance of £4,502 be carried forward to next year's account, as compared with £4,203 for 1932.

It would be noticed that there was a decrease in receipts, although there was an increase in both train mileage and the number of passengers carried. This was accounted for by the company following the general policy of the larger railway companies in making concessions to the travelling public to encourage people who would not otherwise use the railways. The expenditure of railway working as shown in No. 10 account, which included pumping, represented 60.20 per cent. of the traffic receipts, as compared with 60.98 per cent. for 1932. Excluding pumping the figures are 56.68 per cent., as compared with 57.44 per cent. for 1932.

The general reserve fund with the appropriation of £1,000 shown in the last item on the liability side of the balance sheet now stood at £24,548, while the contingency fund remained at £10,000. The total of the renewal, contingency and reserve funds amounted to £101,435, compared with £97,044 for 1932, an increase of £4,392.

The investments in last year's balance sheet stood at £41,690. During the year the directors considered it desirable to rearrange the company's investments, with the result that a rather smaller amount than before—£40,196—was invested. The present investment was represented by £40,000 conversion 3½ per cent. loan, which at December 31 showed a small appreciation.

No expenditure has been incurred on capital account during the year. The continued depression of trade in the

area served by their railway resulted in a decrease in the gross receipts during the first six months of 1933, but he was glad to say that during the second half of the year results were more satisfactory, the receipts for that half-year showing an increase over the corresponding half-year of 1932. The net result was a decrease of £2,420, equivalent to 1.14 per cent. The total reduction in working expenses was £3,102, equivalent to 2.4 per cent. The improvements in the plant which they had made in the past years had assisted materially in achieving that result, and further improvements were continually under consideration by the Board.

During the summer months special cheap facilities were extended and issued daily during July and August, and full advantage of these facilities was taken by the travelling public during the exceptionally hot weather experienced during the summer. The introduction of Summer tickets at approximately 1d. per mile by the large railway companies had been followed by the company with regard to through tickets with satisfactory results.

On the last occasion when they met he dealt at length with the question of the probable effect of the new vehicular tunnel on the Mersey Company's undertaking, and then stated that the provisional date for opening was about the middle of 1934. The date now suggested for the official opening was July of this year. As he dealt fully with the probable effect at last year's general meeting, and as the Board's views had not altered, he saw no reason for repeating the statement then made.

During the latter half of 1933 considerable improvement in traffic was experienced, and since January 1, 1934, they had been able to show increases each week in their receipts, not only over last year, but also a slight increase over the corresponding period of 1932. They considered that this was accounted for by the fact that trade and employment were on the up grade and that confidence was returning. This would appear to indicate that they had turned the corner, but while it was difficult and sometimes unwise to say what the future held, the prospects were that 1934 would prove a better year for the company.

He would like to take that opportunity of expressing thanks to the officers and the whole of the staff engaged in the working of their undertaking for their loyal and efficient service during the past year. Their wholehearted co-operation had enabled the Board to achieve the results presented, which they considered favourable having regard to the period of depression through which they had passed.

The resolution was unanimously adopted.

**Great Western Amateurs in "The Vagabond King."**—Another fine feather has been added to the excellent record of the Great Western Railway (London) Operatic Society following its presentation last week of the popular and successful musical play, "The Vagabond King." In all, five evening performances were given—two at the Park Theatre, Hanwell, and the remainder at the New Scala Theatre, off Tottenham Court Road. The choice of play proved a very happy one, for acting, singing, mounting and team

work were all excellent, and reflected the greatest credit on Mr. George H. Hemmen, the producer and stage manager, and Mr. Charles Gardiner, the hon. musical director and conductor. In the leading rôles, Mr. Edward Brown made a picturesque and convincing figure of François Villon, and Miss Gwen Llewellyn played Katherine with considerable dignity and charm. Mr. Harold Thompson's Louis XI was impressively sardonic, and by contrast the Guy Tabarie of Mr. Jack Sealey was a veritable monument of robust humour.

Miss Alison Edwards did well in the part of Huguette, and Mr. Stephen Sweeney proved himself a capable Oliver. Good support was forthcoming from Miss Stella Sealey (Lady Mary), Miss Gladys Cope (Margot), Mr. J. Goddard (Tristan), Mr. R. Ratcliffe (Toison), Mr. Baden Hawes (Noel), Mr. Bert Church (René) and Mr. M. Longley (Thibaut). The fine work of the chorus and the dances arranged by Miss Winnie Clayton were notable features. A special word of praise is due to the very efficient orchestra.

## NOTES AND NEWS

**Bristol Station Reconstruction.**—On February 26, the new down line platforms Nos. 1 and 2 at Temple Meads were brought into use, and trains formerly using the old Nos. 1 and 2 platforms now run to the new platforms. The reconstruction of Temple Meads station was described in the Special Supplement to THE RAILWAY GAZETTE of December 8, 1933.

**The Highlands in Winter.**—The opportunity offered by the L.N.E.R. on Sunday, February 25, to see the Highlands in their winter grandeur was taken advantage of by 210 passengers. As an experiment a half-day excursion was run from Glasgow to Fort William and Mallaig, calling at the principal stations en route. The return fare from Glasgow was 9s. for the 200-mile trip.

**Southern Railway Pupils and Premium Apprentices' Association Annual Dinner.**—The annual dinner of this association is to be held at the Charing Cross Hotel, London, on March 16. Former Southern Railway, and L.S.W.R., S.E.C.R. and L.B.S.C.R. pupils and premium apprentices who are interested can obtain particulars from the Secretary of the dinner committee, Mr. E. L. Forge, 159, Desborough Road, Eastleigh, Hants.

**Diesel Engines at Leipzig Fair.**—The Maschinenfabrik Augsburg-Nürnberg A.G. (M.A.N.) will again exhibit items from its range of products at this year's Leipzig Fair, which opened on March 1. Among the diesel engines to be shown will be a six-cylinder, 160-b.h.p. unit as used in the railcars of the German State Railway and a three-cylinder, 85-b.h.p. engine for generating plant and lighter traction purposes. Various other M.A.N. products will be represented by models, including a 25,000-b.h.p. Ljungström steam turbine.

**German High-Speed Railcars.**—Under the auspices of the Engineer's German Circle, a lecture was given at the Institution of Mechanical Engineers on February 26 by Reichsbahnoberrat Stroebe on the construction and operation of high-speed diesel-electric railcars, including the Flying Hamburger. The lecture was illustrated by numerous slides, and the latter part of it was devoted to a description of the 175-b.h.p. Maybach-engined diesel-mechanical railcars of the Reichsbahn. An interesting discussion, in German, followed.

**Agreed Charges.**—The Railway Rates Tribunal sat on Tuesday, February 27, to hear applications for approval of agreed charges under Section 37 of the Road and Rail Traffic Act, 1933. The first to be considered was one agreed by the four group companies with Chiswick Products Limited. Mr. Walter Monckton, K.C., Mr. A. Tylor, and Mr. W. Lindsay appeared for the railway companies, and Mr. Jacques Abady for the National Federa-

tion of Iron and Steel Manufacturers. Evidence in support of the application was given on Tuesday by Mr. W. V. Wood, Vice-President, L.M.S.R., and on Tuesday and Wednesday by Mr. Geoffrey Marshall, Goods Manager, Southern Area, L.N.E.R. The case for the National Federation was opened on Wednesday afternoon.

**Metropolitan Line Livery.**—A beginning has been made with lettering the rolling-stock of the former Metropolitan Railway with the name "Underground" in the characteristic lettering adopted by that group immediately after the war. The Metropolitan varnished teak livery is being retained for the time being.

**London Transport Extensions and Improvements.**—The £11,000,000 scheme of railway extensions and improvements instituted by the old Underground group under the Development (Loan Guarantees and Grants) Act, 1929, is now rapidly nearing completion. The works were fully described and illustrated in a special supplement to THE RAILWAY GAZETTE dated November 18, 1932. Work is still in hand on two stations in course of modernisation, namely, Chancery Lane, which is due to be finished in May, and Leicester Square, which will not be completed until next year.

**Proposed East London Tube.**—A proposal for a new tube railway for East London, sponsored by a committee of Rotary Clubs in East London and Essex, is to be submitted to the London Passenger Transport Board. Provisional plans have been prepared for a route from the City via Aldgate, Commercial Road, East India Dock Road, and Beckton to join the L.M.S. Tilbury section near Dagenham Dock. We understand that letters have been addressed to all councils in the area asking for representatives to form a committee to press the Board to construct the line.

**Signal and Telegraph Technical Society.**—The Institution of Railway Signal Engineers has from time to time received applications for membership from men desirous of improving their knowledge of railway signalling, many of them classed as improvers or apprentices, but not engaged in such work as a profession. The Articles of Association will admit such men as students, provided they are engaged in a professional capacity; therefore draughtsmen or pupils may be admitted but not those on the wages staff. It has therefore been felt that there is a need for the formation of some body for the technical advancement of those engaged on outside work, and the L.M.S. men at Chester formed themselves into a society. Recognising that they would receive much help and advice from the Institution of Railway Signal Engineers, they have applied to that body for affiliation,

and have been accepted. Membership is open to anyone engaged in signal engineering, and those interested should communicate with the Secretary, Mr. F. Gibson, Signal and Telegraph Department, L.M.S. Railway, Chester.

### Rail-Hotel Tickets in Switzerland.

—Negotiations for the issue of combined rail and hotel tickets, giving reduced rates for both facilities, are now proceeding in Switzerland. The arrangement is that passengers will be able to pay their hotel bills in advance when booking in Switzerland for any Swiss destination at which they intend to stay.

### Railway Accident in U.S.A.

—A Pennsylvania train from Akron, Ohio, to Pittsburgh was derailed on February 26 while rounding a curve on a viaduct within a mile of Pittsburgh, with the result that several persons were killed and injured. The engine and a coach fell over the viaduct. Some reports attribute the accident to a split rail, others to a frozen switch.

**To Paris Without a Passport.**—As from March 2, "no passport" week-end tickets are being issued for passengers to France by Southern Railway routes. A further innovation is the introduction of cheap week-end fares to Paris, showing a reduction of 30 per cent. on the full rates, by the Dover-Calais and Folkestone-Boulogne services. The availability of tickets is from Friday to Tuesday, an extension to Thursday being permitted over the Easter period.

### Cheap Trips on the Cheltenham Flyer.

—Commencing on March 1, cheap afternoon bookings have been introduced by the G.W.R. between Paddington and Swindon to enable passengers to make the return journey to London on the Cheltenham Flyer, the world's fastest steam train. The return fares are 8s. 6d. first class and 5s. third class. The forward journey is made on the 1.18 p.m. restaurant car train, passengers being due back at Paddington at 5 p.m. The facilities will remain in operation until May 31, but, owing to the heavy loading of the train, the weeks preceding Easter and Whitsun will be excluded.

### Copper Development Association.

—With the object of promoting the wider use of copper, a new organisation, known as the Copper Development Association, has been instituted, with offices at Thames House, Millbank, London, S.W.1, at which a permanent technical advisory staff is maintained. The C.D.A. is closely in touch with research work all over the world, and aims at furthering the practical application of data thus collected. All the branches of engineering in which copper is used come within the scope of the Association, which is engaged in liaison work between the various sections of the copper industry. The C.D.A. is at all times glad to receive enquiries, and is ready to co-operate in development work calculated to further the interests of copper industry as a whole.

## Practical Aspects of the London Passenger Transport Board

On Monday last Mr. Frank Pick, Vice-Chairman of the London Passenger Transport Board, delivered a public lecture at the London School of Economics entitled "Practical Aspects of the London Passenger Transport Board." Among the audience present were Lord Ashfield, Chairman of the London Passenger Transport Board, and Sir Osborne Mance.

In his opening remarks, Mr. Pick made it clear that he was not speaking for the board, but "rather irrelevantly and irresponsibly" for himself. After dealing with the extent of the territory and the different kinds of transport concerns which the board had been, and in some cases still was, in the process of assimilating, Mr. Pick dwelt upon the problem of digestion. On the question of pooling agreements with the main-line railways, he said that it looked as if the ultimate interests in the pool would be about two-thirds to the board and one-third to the main-line railways. Of the gross traffic brought into the pool the board would, it was estimated, contribute 72 per cent. and the main-line railways 28 per cent. The proportions given allowed for variations in traffic operating costs. Before the coming of the board there had been a hundred purposes and a hundred regards which led to confusion and waste. Although the London Passenger Transport Act had made provision for the unification of these into a single purpose and regard, the board was not able to resolve all these at once, if at all. Fare differences had, Mr. Pick considered, to continue and were justified by the characteristics of the various forms of transport. Similarly it was impossible to standardise conditions of employment of the staff. Differences due to organisation, habits, and practices would remain, but the board was enjoying a greater strength in the bonds of unity though its constituent parts were largely unchanged.

In seeking where the ultimate control of the whole organisation lay, Mr. Pick first turned to the panel of appointing Trustees. Of these he said, "They are, with one exception, possibly entirely ignorant of the problems and needs of London Traffic. Yet to them is allotted the task of maintaining a competent and efficient Board. It is easy to make fun of the machine, but it wears about it the stamp of its origin. It is a typical English invention. It smacks of compromise. And then certainly and strangely enough, it is almost sure to be effective and trustworthy." Turning to the Board itself, Mr. Pick, in discussing its control and limitations, said, "These are strong safeguards and it will be difficult for anyone to break in upon the conduct of the board, if only the board executes its duties truly and fairly. All this again is typically English. This grant-

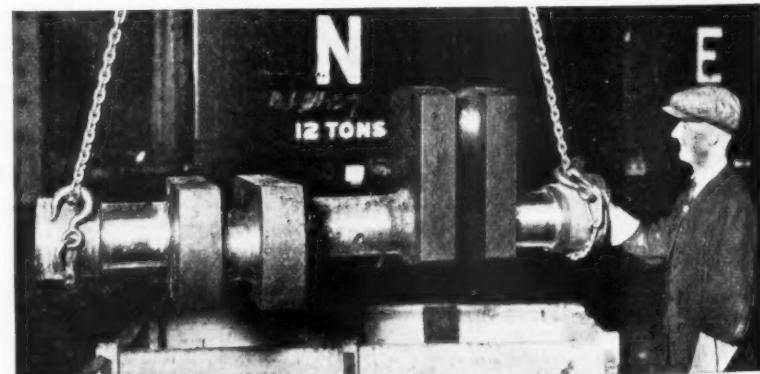
ing of power with qualifications. These qualifications which are in turn qualified. This avoidance of anything absolute, yet this reliance upon the fit and proper person finding ways and means of being as nearly absolute as may be. This controller controlled. As a consequence, the board is neither responsible to the Minister of Transport nor to the Railway Rates Tribunal. It may be responsible to Parliament, but Parliament must undo its work to re-establish its sovereignty. Its power is in abeyance, to be used only in case of need if there should be abuse, or misfeasance, or dereliction of duty. Nor is the board responsible to the stockholders (except to maintain a certain rate of dividend) with whose capital it is entrusted. The stockholders have no say at all in the appointment of the board. They are entitled to neither report nor account. These are to be made to the Minister of Transport and to Parliament."

From this he drew the conclusion that, "Under the board capital has lost its power. It cannot appoint the management nor interfere with it. It cannot use its investment to serve any other end or aim. It has no rights except the right to receive a specified return or reward. The power has been

transferred, let me say it with bated breath, to a bureaucracy. In the escape from capitalist control, in the escape from political control, we have almost fallen into a dictatorship."

Turning to the working of the board—which he described as its own master that had to make its own fortune, and fabric of law and order of which the Act was but the starting point—Mr. Pick said that the monopoly of the board did not eliminate competition from the activities of its undertakings. District vied with district to secure advantages, and the London and Home Counties Advisory Committee was set up as a listening post to pick up and reflect any rumble of discontent. Moreover, inside the board competition was rampant. In staff matters, he added, the board was wholly free, and in discussing the discovery of worthy successors to those at present in office he said, "Every organisation should try to nurse one or two of its more brilliant and less consistent officers in positions of retarded responsibility in which they may try their hands at one thing after another just to see whether they have that spark of genius which will lift management up into something rare and distinguished, just to see whether they have that balance of judgment which in shifting circumstances will enable them to pursue a safe, or rather true, course."

## A Long-lived Crank Axle



Over 50 years ago one of the many hundreds of locomotive crank axles manufactured at the River Don works—now the Vickers works of the English Steel Corporation—was despatched to Australia, and, in November, 1881, was put into service by the New South Wales Government Railways. Since that date the locomotive to which this crank axle was fitted has been continually in service, and altogether has run 917,400 miles. In the words of the Chief Mechanical Engineer, "the crank axle was only removed owing to the locomotive to which it was fitted being withdrawn from traffic—both the journals being in good condition and parallel."

The photograph which we reproduce shows the crank axle being taken out of the packing case in which it was received from Australia. During its long journey of 917,400 miles the number of revolutions made by the crank axle would be roughly 300 millions and it will be realised that this is approximately three times the number of reversals of stress generally applied when carrying out the longest duration fatigue tests. We understand that the English Steel Corporation recently received from the L.N.E.R. one of its crank axles which had run 845,894 miles during a life of 40 years, whilst another crank axle on the L.M.S.R. completed over a million miles.

## British and Irish Railway Traffic Returns

GREAT BRITAIN	Totals for 8th Week			Totals to Date		
	1934	1933	Inc. or Dec.	1934	1933	Inc. or Dec.
L.M.S.R. (6,941 mls.)						
Passenger-train traffic ...	378,000	367,000	+ 11,000	2,872,000	2,797,000	+ 75,000
Merchandise, &c. ....	454,000	389,000	+ 65,000	3,483,000	3,029,000	+ 454,000
Coal and coke ...	277,000	271,000	+ 6,000	2,187,000	2,152,000	+ 35,000
Goods-train traffic ...	731,000	660,000	+ 71,000	5,670,000	5,181,000	+ 489,000
Total receipts ...	1,109,000	1,027,000	+ 82,000	8,542,000	7,978,000	+ 564,000
L.N.E.R. (6,339 mls.)						
Passenger-train traffic ...	246,000	244,000	+ 2,000	1,887,000	1,871,000	+ 16,000
Merchandise, &c. ....	332,000	279,000	+ 53,000	2,518,000	2,099,000	+ 419,000
Coal and coke ...	264,000	238,000	+ 26,000	2,020,000	1,885,000	+ 135,000
Goods-train traffic ...	596,000	517,000	+ 79,000	4,538,000	3,984,000	+ 554,000
Total receipts ...	842,000	761,000	+ 81,000	6,425,000	5,855,000	+ 570,000
G.W.R. (3,750 mls.)						
Passenger-train traffic ...	149,000	151,000	- 2,000	1,202,000	1,203,000	- 1,000
Merchandise, &c. ....	178,000	154,000	+ 24,000	1,382,000	1,207,000	+ 175,000
Coal and coke ...	116,000	94,000	+ 22,000	901,000	873,000	+ 28,000
Goods-train traffic ...	294,000	248,000	+ 46,000	2,283,000	2,080,000	+ 203,000
Total receipts ...	443,000	399,000	+ 44,000	3,485,000	3,283,000	+ 202,000
S.R. (2,177 mls.)						
Passenger-train traffic ...	230,000	221,000	+ 9,000	1,832,000	1,788,000	+ 44,000
Merchandise, &c. ....	64,000	56,500	+ 7,500	466,500	428,000	+ 38,500
Coal and coke ...	40,000	36,500	+ 3,500	298,500	290,000	+ 8,500
Goods-train traffic ...	104,000	93,000	+ 11,000	765,000	718,000	+ 47,000
Total receipts ...	384,000	314,000	+ 20,000	2,597,000	2,506,000	+ 91,000
Liverpool Overhead ...	1,107	1,014	+ 93	8,842	8,228	+ 614
( $\frac{1}{2}$ mls.)						
Mersey ( $\frac{1}{2}$ mls.) ...	3,909	3,754	+ 155	33,920	31,624	+ 2,296
*London Passenger Transport Board ...	503,600	—	—	16,883,000	—	—
IRELAND						
Belfast & C. D. pass. (80 mls.)	1,718	1,625	+ 93	14,238	13,988	+ 250
" " goods	545	523	+ 22	4,156	3,962	+ 194
" " total	2,263	2,148	+ 115	18,394	17,950	+ 444
Great Northern (562 mls.)						
pass. ....	6,600	850	+ 5,750	56,500	37,650	+ 18,850
" " goods	8,900	400	+ 8,500	61,550	38,800	+ 22,750
" " total	15,500	1,250	+ 14,250	118,050	76,450	+ 41,600
Great Southern (2,158 mls.)						
pass. ....	16,374	15,926	+ 448	141,729	138,060	+ 3,669
" " goods	31,589	28,969	+ 2,620	246,864	226,805	+ 20,059
" " total	47,963	44,895	+ 3,068	388,593	364,865	+ 23,728

\* 34th Week

## RAILWAY AND OTHER REPORTS

**London & North Eastern Railway.**—The Secretary writes, February 16:—"The gross receipts of the railway were greater than those of 1932 by £38,945; the gross receipts from ancillary businesses were greater than those of 1932 by £71,629, making together an increase of £110,574. The gross expenditure for the year was less than that of 1932 by £483,000. Including miscellaneous net receipts and charges, &c., the net revenue of the year from all sources was £7,723,120, an increase of £556,262. The balance brought forward from last year was £31,577. Subject to final audit these figures indicate that after transferring from general reserve the same amount as a year ago, viz., £50,000, there is a balance sufficient to pay a dividend at the rate of 2 per cent. upon the 4 per cent. first preference stock, and 2½ per cent. upon the 5 per cent. redeemable preference stock, leaving a balance of

£56,643 to be carried forward. Warrants for these dividends will be posted on March 7."

**Vickers Limited.**—The following final dividends for the half-year ended December 31, 1933, will be paid on March 29:—2½ per cent. on the preferred 5 per cent. stock (less income tax); 2½ per cent. on the 5 per cent. preference shares (less income tax); 2½ per cent. on the cumulative preference shares (free of income tax).

## Forthcoming Meetings

Mar. 2 (Fri.).—**London & North Eastern Railway Company** (Annual General), Wharncliffe Rooms, Hotel Great Central, Marylebone, N.W., at 2 p.m.

Mar. 9 (Fri.).—**Great Southern Railways Company** (Ordinary General), Gresham Hotel, 20-22, Upper O'Connell Street, Dublin, C.8, at 2 p.m.

## British and Irish Railway Stocks and Shares

Stocks	Highest 1933	Lowest 1933	Prices	
			Feb. 28 1934	Rise/ Fall
G.W.R.				
Cons. Ord. ....	551 <sub>2</sub>	31	63	+ 5
5% Con. Prefce. ....	109 <sub>4</sub>	69 <sub>12</sub>	114	+ 2 <sub>12</sub>
5% Red.Pref.(1950)	109 <sub>4</sub>	87 <sub>12</sub>	113 <sub>12</sub>	+ 1
4% Deb. ....	108 <sub>15</sub> <sub>16</sub>	99 <sub>14</sub>	107	+ 1
4½% Deb. ....	108	100 <sub>3</sub> <sub>4</sub>	110 <sub>12</sub>	—
4½% Deb. ....	116	106	117 <sub>12</sub>	—
5% Deb. ....	128	117 <sub>14</sub>	128 <sub>12</sub>	—
2½% Deb. ....	65	60	64 <sub>12</sub>	—
5% Rt. Charge ....	124	111 <sub>12</sub>	126 <sub>12</sub>	+ 1
5% Cons. Guar. ....	122	103	125 <sub>12</sub>	+ 1
L.M.S.R.				
Ord. ....	29 <sub>7</sub>	12 <sub>18</sub>	28	+ 3
4% Prefce. (1923)	51	17	58	+ 6 <sub>12</sub>
4% Prefce. ....	72	33 <sub>14</sub>	81	+ 3
5% Red.Prf. (1955)	93	47 <sub>14</sub>	100	+ 2 <sub>12</sub>
4% Deb. ....	103 <sub>14</sub>	89 <sub>12</sub>	104	+ 2 <sub>12</sub>
5% Red.Deb.(1952)	114	105	113 <sub>12</sub>	—
4% Guar. ....	97 <sub>14</sub>	68 <sub>3</sub> <sub>8</sub>	101	+ 3 <sub>12</sub>
L.N.E.R.				
5% Pref. Ord. ....	22 <sub>12</sub>	7 <sub>3</sub> <sub>4</sub>	21 <sub>3</sub> <sub>4</sub>	+ 2 <sub>12</sub>
Def. Ord. ....	10 <sub>3</sub> <sub>4</sub>	4 <sub>1</sub> <sub>8</sub>	10 <sub>3</sub> <sub>8</sub>	+ 5 <sub>8</sub>
4% First Prefce. ....	65 <sub>2</sub>	19 <sub>5</sub> <sub>8</sub>	71 <sub>12</sub>	+ 6 <sub>12</sub>
4% Second Prefce. ....	40 <sub>12</sub>	12 <sub>14</sub>	40 <sub>12</sub>	+ 3 <sub>12</sub>
5% Red.Pref. (1955)	83 <sub>3</sub> <sub>4</sub>	27	90 <sub>12</sub>	+ 7 <sub>12</sub>
4% First Guar. ....	94 <sub>3</sub> <sub>4</sub>	58 <sub>1</sub> <sub>4</sub>	96 <sub>12</sub>	+ 3 <sub>12</sub>
4% Second Guar. ....	89 <sub>14</sub>	48	93	+ 5
3% Deb. ....	77	60 <sub>14</sub>	78 <sub>12</sub>	+ 3
4% Deb. ....	102 <sub>5</sub> <sub>4</sub>	80	103	+ 2 <sub>12</sub>
5% Red.Deb.(1947)	112	102 <sub>12</sub>	111 <sub>12</sub>	+ 1 <sub>2</sub>
4½% Sinking Fund Red. Deb.	107 <sub>12</sub>	98 <sub>3</sub> <sub>4</sub>	106 <sub>12</sub>	—
SOUTHERN				
Pref. Ord....	71	27 <sub>3</sub> <sub>4</sub>	85	+ 6
Def. Ord. ....	24 <sub>8</sub>	9 <sub>3</sub> <sub>8</sub>	26	+ 2 <sub>12</sub>
5% Prefce. ....	107 <sub>11</sub> <sub>16</sub>	74	114	+ 2
5% Red.Pref. (1964)	107 <sub>5</sub> <sub>4</sub>	78 <sub>7</sub>	113 <sub>12</sub>	+ 1
5% Guar. Prefce. ....	124 <sub>1</sub> <sub>4</sub>	102 <sub>3</sub> <sub>4</sub>	125 <sub>12</sub>	+ 2
5% Red.Guar.Pref. (1957)	115 <sub>8</sub>	103 <sub>12</sub>	115 <sub>12</sub>	+ 1
4% Deb. ....	107 <sub>12</sub>	96 <sub>3</sub> <sub>4</sub>	107	+ 1
5% Deb. ....	126 <sub>12</sub>	114 <sub>14</sub>	127 <sub>12</sub>	—
4% Red. Deb. ....	107 <sub>14</sub>	100	106 <sub>12</sub>	—
BELFAST & C.D.	6	4	6	—
FORTH BRIDGE				
4% Deb. ....	99 <sub>12</sub>	95 <sub>12</sub>	100 <sub>12</sub>	—
4% Guar. ....	98 <sub>12</sub>	94	100 <sub>12</sub>	—
G. NORTHERN (IRELAND)				
Ord. ....	7 <sub>12</sub>	3 <sub>12</sub>	5	—
G. SOUTHERN (IRELAND)				
Ord. ....	28	16	24 <sub>5</sub> <sub>4</sub>	—
Prefce. ....	24	12 <sub>18</sub>	20	—
Guar. ....	42	16 <sub>3</sub> <sub>4</sub>	44	+ 1 <sub>2</sub>
Deb. ....	60	30 <sub>7</sub> <sub>8</sub>	62	—
L.P.T.B.				
4½% "A" ....	117 <sub>8</sub>	112	117	+ 1
5% "A" ....	127 <sub>14</sub>	119 <sub>14</sub>	126 <sub>12</sub>	+ 1 <sub>2</sub>
4½% "T.F.A." ....	111 <sub>14</sub>	106	109 <sub>12</sub>	—
5% "B" ....	122 <sub>12</sub>	114	120 <sub>12</sub>	+ 1 <sub>2</sub>
"C" ....	86 <sub>3</sub> <sub>4</sub>	74 <sub>12</sub>	83	—
MERSEY				
Ord. ....	161 <sub>4</sub>	5	13	—
4% Perp. Deb. ....	83	63 <sub>7</sub> <sub>8</sub>	85 <sub>12</sub>	—
3% Perp. Deb. ....	62	51	64 <sub>12</sub>	+ 1
3% Perp. Prefce....	50 <sub>5</sub> <sub>8</sub>	27	50 <sub>12</sub>	+ 1

\* ex-dividend

March 2, 1934

## CONTRACTS AND TENDERS

Weston Shipley & Weston Limited has secured an order from the Stores Purchase Committee, Government of Mysore, for a 6 in.-12 in. pipe cutting machine.

The Egyptian State Railways Administration invites tenders closing on May 12 for the supply of 270,000 metric tons of coal.

Alfol Insulation Limited has secured an order for Alfol insulation for the boilers of the 50 locomotives which the Vulcan Foundry Limited has in hand for the L.M.S.R.

H. J. Skelton & Co. Ltd., on behalf of Usines et Boulonnieres de Mariemont, has received from the Buenos Ayres Great Southern Railway an order for 62,000 steel coach screws.

Siemens Brothers & Co. Ltd. has secured an order from the Egyptian State Railways Administration for the supply of automatic telephone equipment comprising 7,200 automatic desk sets and 1,770 automatic wall sets.

The Egyptian State Railways Administration has placed orders as follow :—

Ferguson Paillie Limited : Switchgear and switches. Brown Bayley's Steelworks Limited : Helical springs. Robert Stephenson & Co. Ltd. : Locomotive trailing, coupled wheels and axles.

Fried Krupp : Special steel for laminated springs. Metal Traders Limited : Tin ingots.

D. Wickham & Co. Ltd., through W. Bayliss & Co. Ltd., has secured orders for 35 petrol-driven permanent way gang trolleys and 140 roller bearing axleboxes from the Central Argentine Railway.

The Birmingham Railway Carriage & Wagon Co. Ltd. has secured an order for two diesel-electric railcars for the Buenos Ayres Western Railway. These cars are to be fitted with Gardner 148-h.p. engines and electrical equipment by Crompton & Parkinson Limited.

Craven's Railway Carriage & Wagon Co. Ltd. has recently received orders as follows :—Six 20-ton steel wagons for use in the works of the Parkgate Iron & Steel Company, Rotherham ; five double-decked all-metal bus bodies mounted on Leyland six-wheeled chassis ; and two double-decked all-metal bus bodies mounted on Leyland four-wheeled chassis for the Sheffield Corporation, L.M.S.R. and L.N.E.R. Joint Committee.

In connection with the rebuilding of three viaducts on the L.M.S.R. London-Manchester main line between Derby and Ambergate, the reconstruction of Broadholme and Belper Pool viaducts is to receive attention first. Preliminary work for the sinking of cylinders at these two viaducts has already been begun by the contractors, Mitchell Brothers Sons & Co. Ltd., of Westminster, who have sublet the 1,700 tons of steelwork in girders, &c., to the Butterley Co. Ltd. The steel cylinders are being made by the Horsehay Co. Ltd. The reconstruction scheme is being

carried out under the supervision of the L.M.S.R. Divisional Engineer, Derby.

The International General Electric Co. Ltd. has received an order from the Stores Purchase Committee, Government of Mysore, Bangalore, for a 500-kW. frequency changer set.

Tenders are invited by the Agent, North Western Railway of India, Lahore, receivable by March 20, for the supply of 1,000 screw couplings.

John Fowler & Co. (India) Ltd. has received an order from the Government of India, Indian Stores Department, New Delhi, for a 7½/8¼-ton steam road roller.

Reynolds & Wilson Limited has secured an order from the Stores Purchase Committee, Government of Mysore, Bangalore, for four motor-driven sliding, surfacing and screw-cutting lathes.

Ransomes & Rapier Limited has secured an order from the Stores Purchase Committee, Government of Mysore, Bangalore, for four sluice gates for hand and electric operation.

Scott & Saxby Limited has secured an order from the Government of India, Indian Stores Department, New Delhi, for two sets of electrically-driven vertical spindle pump sets for locomotive water supply at Ondal.

Greaves Cotton & Company has secured an order from the Government of India, Indian Stores Department, New Delhi, for three sets of Byron Jackson Deepwell turbine pumps with Crompton Parkinson motor, and piping.

J. Stone & Co. (India) Ltd. has secured a rate contract from the Chief Controller of Stores, Indian Stores Department, New Delhi, for a period of one year for superheater elements of the Superheater Company's make.

The Agent, G.I.P. Railway, Victoria Terminus, Bombay, invites tenders receivable by March 22 for the supply of copper rail bonds, including track joint bonds, continuity bonds and cross bonds, cables for special bonds and copper rivets.

Cowans Sheldon & Co. Ltd. has received orders from the Stores Purchase Committee, Government of Mysore, Bangalore, for a 41 ft. 6 in. electrically-operated traverser suitable for handling a travelling crane ; and two 10-ton travelling cranes.

The General Electric Co. (India) Ltd. has secured an order from the Stores Purchase Committee, Government of Mysore, Bangalore, for Osram metal filament electric lamps, the Associated Electrical Industries (India) Limited, has secured an order for Mazda gas-filled lamps, and La Claire Electric Lamps Corporation has secured an order for Claire electric lamps.

Metropolitan-Vickers Electrical Co. Ltd. has received a part contract from the L.M.S.R., N.C.C., Ireland, for Cosmos electric lamps.

The Chief Controller of Stores, Indian Stores Department, New Delhi, has placed rate contracts for the supply of covered copper wire with the General Electric Co. (India) Ltd., B. M. Singh & Son, and W. T. Henley's Telegraph Works Co. Ltd.

Tenders are invited by the North Western Railway of India, Lahore, receivable by March 20, for the supply of 515 sets of combination fishplates, 40,000 dogspikes, 126,000 mild steel bearing plates and 145 sets of points and crossings.

Henry Williams (India) (1931) Limited has secured orders from the Chief Controller of Stores, Indian Stores Department, New Delhi, for 20 locomotive crank axles, 70 locomotive straight axles, and 34 tender axles for various locomotive classes.

The Krupp Indian Trading Co. Ltd. has secured orders from the Chief Controller of Stores, Indian Stores Department, New Delhi, for a total of 598 locomotive tyres of sizes 5 ft. 8 in. diam. to 1 ft. 7½ in. diam. ; and 15 locomotive crank axles.

Skoda (India) Limited has secured orders from the Chief Controller of Stores, Indian Stores Department, New Delhi, for 300 3 ft. 2 in. diam. broad-gauge carriage and wagon tyres and 15 locomotive crank axles.

The Chief Controller of Stores, Indian Stores Department (Engineering Section), New Delhi, invites tenders receivable by March 19 for 150,000 square-headed fishbolts with hexagonal nuts, 3,000 fishbolts and nuts with cup head and pear-shaped neck, and a total of 13,000 fang bolts and nuts.

The Stores Purchase Committee, Government of Mysore, Bangalore, has recently placed orders as follows :—

W. E. Hughes & Co. Ltd. : Tin plate. British Insulated Cables Limited : Copper wire. Baldwin Limited : Stampings for 15 and 25 kVA. transformers. Associated Electrical Industries (India) Limited : Oil circuit breakers. R. Thomas Sons & Co. : Galvanised steel double links. Canadian Porcelain Company : Clevis suspension clamps and steel hooks.

The Westinghouse Brake & Saxby Signal Co. Ltd. has secured orders for the supply of heater equipment for the 120 coaches which, as recorded in THE RAILWAY GAZETTE for February 2, the Metropolitan-Cammell Carriage, Wagon & Finance Co. Ltd., the Birmingham Railway Carriage & Wagon Co. Ltd., and R. Y. Pickering & Co. Ltd. have under construction for the L.M.S.R. The Westinghouse Brake & Saxby Signal Co. Ltd. has also secured the order for the supply of brake equipment for those coaches of the L.M.S.R. order which the Metropolitan-Cammell Carriage, Wagon & Finance Co. Ltd. has in hand.

## OFFICIAL NOTICES

## The Chinese Government Purchasing Commission

THE Commission is prepared to receive Tenders from British manufacturers for the supply of :—

- (a) 60 TONS OF FISHBOLTS.
- 266 TONS OF DOGSPKES.
- (b) 78 SETS POINTS AND CROSSINGS OF 45-KG. AND 60-LB. RAILS.
- (c) 300,000 BEARING PLATES FOR 45-KG. RAILS.

Tender Forms, Specifications and Drawings can be obtained on and after March 6th at the offices of the Consulting Engineers, MESSRS. SANDBERG, 40, Grosvenor Gardens, London, S.W.1.

Non-returnable fees will be charged for each set of documents: (a), 15s., (b) 20s., (c) 10s.

## THE MADRAS &amp; SOUTHERN MAHARATTA RAILWAY CO. LTD. invite Tenders for : TWO BOILERS G/S CLASS FOR 4-6-0 TYPE LOCOMOTIVES (METRE GAUGE).

Tenders are due in on Tuesday, 20th March, 1934, by 2 p.m.

Tender forms are obtainable at address below, fee ONE GUINEA, which will not be returned. The Directors do not bind themselves to accept the lowest or any Tender.

Company's Offices :—  
25, Buckingham Palace Road,  
Westminster, London, S.W.1.

**SOUTHERN RAILWAY NEW POSTERS.**—Clever design and bright colouring are the leading characteristics of a series of new posters which have lately made their appearance on the station hoardings of the Southern Railway. Not unnaturally, perhaps, in three of the posters stress is laid on the fact that the Southern Railway is the line *par excellence* for winter sunshine, and this is borne out by an attractive view of the Bournemouth seafront, taken from the east cliff there. Three other posters are devoted to the company's famous electric service—a service which, as two of the bills remind us, not only "ensures a good morning" for the traveller, but also enables him to "enjoy a good night." In addition, there is an attractive local poster bearing the slogan: "Cheap shopping tickets to London from this station"; another emphasising that "summer" penny a mile return tickets are now obtainable all the year round and by *any train*; a third relating to the short sea routes to Paris, Brussels and Berlin; and a fourth showing a front end view of the Bournemouth Belle-Pullman express.

**STEEL FOR GIRDER BRIDGES.**—An addendum sheet C.D. (PW) 907 for inclusion in the current issue of Part 3, Loads and Stresses, of the B.S. Specification No. 153 for Girder Bridges has recently been issued. A revision of Parts 1 and 2, Materials and Workmanship, was issued early last year. The revision of Parts 3, 4 and 5, dealing respectively with Loads and Stresses, Details of Construction and Erection, has not yet been completed. As important alterations to the permissible working stresses in Part 3 have been agreed upon these have been issued without waiting for the completion of the

## Bengal-Nagpur Railway Company Limited

THE Directors are prepared to receive Tenders for :—  
1,000 PAIRS ROLLED DISC CENTRE TYRED WHEELS WITH STEEL AXLES.

Specification and Form of Tender can be obtained at the Company's Offices, 132, Gresham House, Old Broad Street, London, E.C.2, on or after Thursday, 1st March, 1934.

A fee of 2s. will be charged for each copy of the Specification, which is *NOT* refundable.

Tenders must be submitted not later than NOON on Thursday, 15th March, 1934.

The Directors do not bind themselves to accept the lowest or any Tender and reserve to themselves the right of reducing or dividing the order.

By Order of the  
R. GRANT,  
Secretary.

**PATENTS** for Inventions, Trade Marks, Advice, Handbook, and consultations free. King's Patent Agency, Ltd. (B. T. King, C.I.M.E., Registered Patent Agent, G.B., U.S., and Canada), 146A, Queen Victoria Street, London, E.C.4. 49 years' references. "Phone City 6161.

## Sudan Government

**SUDAN RAILWAYS** require an ASSISTANT DISTRICT TRAFFIC MANAGER, under 26 years of age, unmarried, of Public School and University education, with some experience in Traffic Working on an English or Overseas railway.

Applications will not be considered until 15th May, 1934. The successful candidate will be required to leave for the Sudan about three months later.

Initial salary £E.480 per annum (£E.1 = £1 0s. 6d.). Salaries of Sudan Government officials are at present subject to a 7½ per cent. abatement. Probationary contract for two years; free first-class passage; strict medical examination.

Applications, giving full particulars of age, education, railway experience and copies of testimonials, should be sent to THE CONTROLLER, Sudan Government London Office, Wellington House, Buckingham Gate, S.W.1, marking envelope "District Traffic Manager."

**THE Proprietors of British Patents Nos. 201,838, 213,807, 261,945 and 266,446** are prepared to sell the Patents or to licence British manufacturers to work thereunder. They relate to the transfer of freight by means of automobile trucks having demountable bodies which are raised by suitable hoist mechanism at a transfer station. Address: BOULT, WADE & TENNANT, 112, Hatton Garden, London, E.C.1.

revision. The basic unit tensile stress has been increased from 8 to 9 tons per sq. in. with a corresponding increase for the compression members. Recognition is also made of the increase in the strength of girders in which the compression flanges and webs are encased in concrete, the permissible strength of both tension and compression flanges now being 10 tons per sq. in. The shear stress in webplates has also been increased from 5 to 5½ tons per sq. in., and while shear on shop rivets remains at 6 tons per sq. in., bearing stresses have been increased from 12 to 15 tons per

sq. in. The permissible excess above the specified working stress (combined stresses) is reduced to 15 per cent., and for erection stresses to 20 per cent. The committee responsible for the proposals included Mr. C. J. Brown (chairman), Lt.-Col. E. P. Anderson, Mr. H. J. Fereday, Mr. John Miller, Mr. A. P. Lambert, Mr. T. C. Swallow, Mr. R. J. Harvey, Sir Cyril Kirkpatrick and Sir Alexander Gibb. Copies of the addendum sheet may be obtained gratis on receipt of a stamped addressed envelope by the British Standards Institute, 28, Victoria Street, London, S.W.1.

## Forthcoming Events

Mar. 2 (*Fri.*).—Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, 7 p.m. Informal Meeting.

Stephenson Locomotive Society (Scottish), at Cambridge House, Edinburgh, 7 p.m. "The Further North Section of the Highland Railway," by Mr. C. S. Mackenzie.

Mar. 3 (*Sat.*).—Locomotivemen's Craft Guild (London), at Borough Polytechnic Inst., S.E.1, 6.30 p.m. "Exhaust Injectors," by Mr. H. H. Basford.

Mar. 5 (*Mon.*).—London School of Economics, Houghton Street, W.C.2, 5 p.m. "Practical Aspects of the London Passenger Transport Problem," by Mr. Frank Pick.

Railway Convalescent Homes, at Wharncliffe Rooms, Hotel Great Central, Marylebone, N.W.1, 6.15 for 6.45 p.m. Spring Banquet.

Mar. 6 (*Tues.*).—Federation of Railway Lecture and Debating Societies, North Eastern Area, at Railway Inst., Queen Street, York, 7 p.m. "A Recent Investigation into the Condition of Industry in the North East," by Prof. H. M. Hallsworth, C.B.E.

Institute of Transport (Bristol), at the University, 5.40 p.m. Paper by Mr. A. F. Nicholson, O.B.E.

Institution of Civil Engineers, Great George Street, London, S.W.1, 6 p.m. "Steel Rails," by Messrs. V. Harbord and E. F. Law.

Mar. 7 (*Wed.*).—Institute of Metals (London), at Inst. of Mechanical Engineers, Storey's

Gate, S.W.1, 10 a.m. Annual General Meeting. Annual Dinner and Dance, at Trocadero Restaurant, Piccadilly Circus, W.1, 7 p.m.

Institution of Civil Engineers, at Savoy Hotel, Strand, London, W.C.2, 7.15 for 7.45 p.m. Annual Dinner.

Permanent Way Institution (Newcastle), at Mining Inst., Westgate Road, 7 p.m. "The Principles of Setting Out P. and C. Work with String and Line," by Mr. R. Gurd.

Stephenson Locomotive Society, at King's Cross Station (L.N.E.R.), London, N.1, 6.30 p.m. "A Brief Survey of the Canadian Railway System and Transatlantic Services," by Mr. A. F. Wallis.

Mar. 8 (*Thurs.*).—G.W.R. (London) Lecture and Debating Society, in General Meeting Room, Paddington Station, 5.45 p.m. "The Work of the Surveyor's and Estate Department," by Mr. F. C. Hockridge.

Retired Railway Officers' Society, in Cambridge Room, Liverpool Street Hotel, London, E.C.2, 1 for 1.15 p.m. Annual Luncheon.

Mar. 9 (*Fri.*).—Railway Club, 57, Fetter Lane, London, E.C.4, 7.30 p.m. "The L. and Y. Railway," by Mr. L. C. King-Williamson.

Mar. 10 (*Sat.*).—Permanent Way Institution (Manchester-Liverpool), at Victoria Station, Manchester, 3 p.m. Discussion: "Day to Day Work of a Ganger."

Stephenson Locomotive Society (Midlands), at Cheetham Hill, Manchester, 6.30 p.m. Photographic Night.

March 2, 1934

## Railway Share Market

The stock and share markets have been buoyant as far as concerns the Home Railway section. This change is in sharp contrast to the experience of the last few years when Home Railway stocks have been of secondary interest to the industrial and mining markets. The Home Railway market is now feeling the accumulated effect of the buying by small investors for some months past of relatively small amounts of stock. This has had the effect of removing from the market much of the available stock, except in the more gilt-edged class of debenture stocks, and Stock Exchange dealers have lately been complaining of the difficulty of providing for the demands of buyers. The resultant effect on prices is to force them up at a rapid rate and, possibly, too much in advance of dividend prospects. Great Western ordinary stock had a sharp rise this week despite the fact that net re-

venue still falls substantially below the amount required to pay the 3 per cent. dividend on the stock, whilst in the case of the ordinary and deferred stocks of the L.M.S.R. and L.N.E.R. respectively it is considered that on dividend merits prices are already discounting the future a good way ahead. Speculative sentiment has, however, to be considered, and it is possible that both stocks will continue to reflect the more cheerful outlook for both the companies. Sir Josiah Stamp's reference to the possibility, under certain improved conditions of trade, for dividends to be resumed on all classes of the L.M.S. company's stocks was not without its influence on the market.

Southern preferred ordinary stock is now rapidly being regarded as an investment stock on the view that the full dividend of 5 per cent. for the current year may be reasonably anticipated. The deferred stock is rising in price on the longer view that the company's plans for

electrification of the system may open up further big sources of passenger traffic. London Passenger Transport "C" stock has held up very well, notwithstanding the critical statements made by the Board's Vice-Chairman regarding the financial structure of the Board. Fortunately, possible selling owing to the tendency of small investors to misunderstand references of this kind to finances is counterbalanced by the more expert view of the City man who realises the value of Mr. Frank Pick's comments.

Foreign railway stocks have been without special feature. The tendency for Argentine stocks to be sold continued during the week. There is now a disposition for small investors to buy Argentine railway ordinary stocks which have heavily depreciated with a view to locking them up against a future recovery, but this does not stem the effect of the sales of big blocks by holders who require to receive income on their capital.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

Railways	Miles open 1933-34	Week Ending	Traffics for Week			No. of Week	Aggregate Traffics to Date			Shares of Stock	Prices					
			Total this year	Inc. or Dec. compared with 1933	No. of Week		Totals		Increase or Decrease		Highest 1933	Lowest 1933	Feb. 28, 1934	Yield % (See Note)		
							This Year	Last Year								
South & Central America																
Antofagasta (Chili) & Bolivia	830	25.2.34	14,750	+ 5,680	8	95,000	69,950	+ 25,050	Ord. Stk.	26	115 <sub>4</sub>	21	Nil			
Argentine North Eastern	753	17.2.34	9,100	+ 100	33	334,300	367,100	- 32,800	A. Deb.	141 <sub>2</sub>	5	92 <sub>2</sub>	Nil			
Argentine Transandine	111	13.1.34	1,340	+ 130	28	30,950	5,640	+ 25,310	6 p.c. Db.	55	40	50	8			
Bolivar	170	Jan., 1934	6,550	- 1,050	4	6,550	7,600	- 1,050	Bonds	10	5	10	Nil			
Brazil	—	—	—	—	—	—	—	—	Ord. Stk.	15	11	13	3 <sub>6</sub>			
Buenos Ayres & Pacific	2,806	24.2.34	131,000	+ 1,000	34	3,437,000	3,587,000	- 150,000	Ord. Stk.	26	971 <sub>6</sub>	13	Nil			
Buenos Ayres Central	190	18.2.34	6,277	- 2,080	34	335,340	312,822	+ 22,518	Mt. Db.	30	10	25 <sub>4</sub>	Nil			
Buenos Ayres Gt. Southern	5,075	24.2.34	255,000	+ 23,000	34	6,678,000	6,669,000	+ 9,000	Ord. Stk.	441 <sub>2</sub>	211 <sub>2</sub>	29 <sub>2</sub>	Nil			
Buenos Ayres Western	1,926	24.2.34	70,000	- 5,000	34	2,147,000	2,260,000	- 113,000	Ord. Stk.	341 <sub>2</sub>	153 <sub>4</sub>	22 <sub>2</sub>	Nil			
Central Argentine	3,700	24.2.34	156,000	+ 20,000	34	5,581,000	6,294,000	- 713,000	Ord. Stk.	281 <sub>2</sub>	15	18 <sub>2</sub>	Nil			
Cent. Uruguay of M. Video	273	24.2.34	18,303	+ 3,823	34	555,522	520,097	+ 35,425	Ord. Stk.	18	10	141 <sub>2</sub>	Nil			
Do. Eastern Ext.	311	24.2.34	3,999	+ 341	34	109,484	110,931	- 1,447	—	—	—	—	—			
Do. Northern Ext.	185	24.2.34	2,158	+ 124	34	59,712	65,007	- 5,295	—	—	—	—	—			
Do. Western Ext.	211	24.2.34	2,167	+ 771	34	55,202	47,726	+ 7,476	—	—	—	—	—			
Cordoba Central	1,218	24.2.34	34,000	- 34	1,431,000	1,435,000	- 4,000	Ord. Inc.	91 <sub>4</sub>	212	5	Nil				
Costa Rica	188	Nov., 1933	18,534	- 3,195	21	99,724	107,788	- 8,064	Stk.	29	20	26	71 <sub>16</sub>			
Dorada	70	Jan., 1934	11,700	+ 3,900	4	11,700	7,800	+ 3,900	1 Mt. Db.	761 <sub>2</sub>	685 <sub>4</sub>	80	72 <sub>2</sub>			
Entre Rios	810	17.2.34	15,100	+ 2,000	33	526,300	521,200	+ 5,100	Ord. Stk.	261 <sub>2</sub>	9	171 <sub>2</sub>	Nil			
Great Western of Brazil	1,082	24.2.34	9,000	- 6,200	8	87,700	133,300	- 45,600	Ord. Sh.	23 <sub>6</sub>	12	54	NE			
International of Cl. Amer.	794	Year, 1933	—	—	52	\$4,537,681	\$5,013,065	- \$475,384	—	—	—	—	—			
Intercceanic of Mexico	—	—	—	—	—	—	—	—	Ist Pref.	1 <sub>2</sub>	1 <sub>2</sub>	1 <sub>2</sub>	Nil			
La Guaira & Caracas	228 <sub>4</sub>	Jan., 1934	4,400	- 2,710	4	4,400	7,110	- 2,710	Stk.	16	10	121 <sub>2</sub>	Nil			
Leopoldina	1,918	24.2.34	23,583	- 4,706	8	173,232	202,153	- 28,921	Ord. Stk.	201 <sub>4</sub>	10	11	Nil			
Mexican	483	21.2.34	\$220,300	+ \$35,600	7	\$1,491,300	\$1,282,700	+ \$208,600	—	3	1 <sub>2</sub>	3	Nil			
Midland of Uruguay	319	Jan., 1934	11,450	+ 3,230	30	68,680	69,424	- 8,256	Ord. Stk.	2	1	2	Nil			
Nitrate	411	15.2.34	8,474	+ 5,848	6	42,123	8,114	+ 34,009	Ord. Sh.	78 <sub>6</sub>	11 <sub>16</sub>	314	Nil			
Paraguay Central	274	17.2.34	2,710	+ 910	33	106,150	90,660	+ 15,490	Pr. Li. Stk.	72	491 <sub>2</sub>	69	40 <sub>16</sub>			
Peruvian Corporation	1,059	Jan., 1934	58,729	+ 8,381	30	388,420	396,121	- 7,701	Pref. Stk.	151 <sub>4</sub>	5	111 <sub>2</sub>	Nil			
Salvador	100	17.2.34	2,835	- 2,192	34	39,328	84,735	- 45,407	Pr. Li. Db.	70	661 <sub>2</sub>	70	71 <sub>2</sub>			
San Paulo	153 <sub>2</sub>	18.2.34	28,714	- 13,862	7	198,015	219,513	- 21,498	Ord. Stk.	102	68	81	2 <sub>16</sub>			
Talata	164	Jan., 1934	8,135	+ 725	30	39,200	15,525	+ 23,675	Ord. Sh.	15 <sub>4</sub>	3 <sub>4</sub>	15 <sub>8</sub>	65 <sub>16</sub>			
United of Havana	1,365	24.2.34	31,444	- 3,446	34	487,500	533,702	- 46,202	Ord. Stk.	8	2	5	Nil			
Uruguay Northern	73	Jan., 1934	922	- 637	30	8,305	11,474	- 3,169	Deb. Stk.	6	312	5	Nil			
Canada	23,750	21.2.34	57,561,980	+ 10,795,040	7	396,390,600	332,257,000	+ 64,733,600	—	—	—	—	—			
Canadian National	—	—	—	—	—	—	—	—	Perp. Dbs.	601 <sub>2</sub>	38	65	61 <sub>6</sub>			
Canadian Northern	—	—	—	—	—	—	—	—	4 p.c. Gar.	995 <sub>4</sub>	85	981 <sub>2</sub>	41 <sub>16</sub>			
Grand Trunk	—	—	—	—	—	—	—	—	Ord. Stk.	221 <sub>8</sub>	11	16	Nil			
Canadian Pacific	17,018	21.2.34	428,800	+ 74,400	7	3,072,800	2,887,200	+ 485,600	—	—	—	—	—			
India	Assam Bengal	1,329	27.1.34	29,265	+ 5,290	43	1,017,181	1,036,034	- 18,853	Ord. Stk.	79	70	731 <sub>2</sub>	41 <sub>6</sub>		
Barsi Light	202	3.2.34	2,970	- 667	44	127,560	118,657	+ 8,903	Ord. Sh.	101 <sub>5</sub>	70	981 <sub>2</sub>	61 <sub>6</sub>			
Bengal & North Western	2,113	3.2.34	36,551	- 18,490	18	325,246	380,252	- 5,006	Ord. Stk.	292	240	265	61 <sub>6</sub>			
Bengal Dooras & Extension	161	3.2.34	2,487	+ 487	44	130,980	130,343	+ 637	—	127	119	125	59 <sub>2</sub>			
Bengal-Nagpur	3,269	27.1.34	113,625	+ 1,523	43	4,527,028	4,185,733	+ 341,295	—	971 <sub>4</sub>	831 <sub>2</sub>	981 <sub>2</sub>	41 <sub>6</sub>			
Bombay, Baroda & C. India	3,089	17.2.34	198,000	+ 23,625	46	6,688,600	6,673,800	+ 214,800	—	112	107	110 <sub>16</sub>	51 <sub>16</sub>			
Madras & South's Mahratta	3,230	17.2.34	112,425	+ 6,388	43	4,599,467	4,443,135	+ 156,332	—	127	114 <sub>4</sub>	123 <sub>2</sub>	79 <sub>16</sub>			
Rohilkund & Kumaon	572	3.2.34	11,706	- 62	18	164,314	154,277	+ 10,037	—	260	225	250	6			
South India	2,526	27.1.34	70,575	- 2,413	43	3,348,740	3,402,396	- 53,656	—	1191 <sub>2</sub>	112	116 <sub>2</sub>	67 <sub>6</sub>			
Various	Beira-Umtali	204	Dec., 1933	49,418	+ 13,382	12	149,024	116,708	+ 32,316	—	—	—	—			
Bilbao River & Cantabrian	15	Dec., 1933	988	- 48	52	18,980	21,553	- 2,573	—	—	—	—	—			
Egyptian Delta	621	10.2.34	7,137	+ 466	46	206,432	226,381	- 19,949	Prf. Sh.	151 <sub>32</sub>	15 <sub>4</sub>	42	Nil			
Great Southern of Spain	1,04	17.2.34	1,609	- 270	7	14,859	14,419	+ 440	Inc. Deb.	4	3	52 <sub>2</sub>	Nil			
Kenya & Uganda	1,025	Aug., 1933	159,746	+ 12,456	35	1,523,550	1,273,216	+ 250,334	—	—	—	—	—			
Manila	—	—	—	—	—	—	—	—	B. Deb.	53	331 <sub>2</sub>	43 <sub>2</sub>	81 <sub>6</sub>			
Mashonaland	913	Dec., 1933	90,718	+ 35,205	12	277,053	178,354	+ 98,699	1 Mg. Db.	91 <sub>4</sub>	42	94	59 <sub>2</sub>			
Midland of W. Australia	277	31.12.33	11,285	- 870	25	80,396	77,686	+ 2,710	Inc. Deb.	89	70	96 <sub>12</sub>	44 <sub>6</sub>			
Nigerian	1,314	6.2.34	66,272	- 7,174	42	1,325,708	1,414,644	- 88,946	4 p.c. Db.	981 <sub>2</sub>	80 <sub>4</sub>	100	4			
Rhodesia	1,538	Dec., 1933	149,133	+ 43,759	12	465,925	319,334	+ 146,591	—	—	—	—	—			
South African	13,151	3.2.34	458,265	+ 43,812	45	20,016,382	17,339,308	+ 2,677,074	—	—	—	—	—			
Victorian	6,172	Nov., 1933	778,567	- 11,734	21	3,576,106	3,675,303	- 199,197	—	—	—	—	—			
Zafra & Huelva	112	Nov., 1933	10,926	+ 149	47	123,826	120,955	+ 2,871	—	—	—	—	—			

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1<sub>16</sub>.

† Receipts are calculated @ 1s. 8d. to the rupee.

‡ Average rate of exchange for the week:—This year 235<sub>64</sub>. Last year 41<sub>32</sub>.

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